SAF-RC-048
100 Area and 300 Area Component of the RCBRA Water Sampling
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Jill Thomson	H0-23	_NB 5/22/06_
		INITIAL/DATE
Jeanette Duncan	H9-02	_NB 5/22/06_
		INITIAL/DATE

COMMENTS:

SDG   K0263   SAF-RC-048

Rad only   Chem only   X   Rad & Chem

X   Complete   Partial

Waste Site: 199-N-26

EBERLINE SERVICES

May 11, 2006

Ms. Joan Kessner
Washington Closure Hanford
3190 George Washington Way
MSIN H9-02
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R6-03-125-7403, SDG K0263

Dear Ms. Kessner:

Enclosed is the data report for one water sample designated under SAF No. RC-048. The sample was received at Eberline Services on March 22, 2006. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0263 was composed of one water sample designated under SAF No. RC-048 with a Project Designation of: 100 Area and 300 Area Component of the RCBRA Water Sa.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. All results were transmitted to WCH via e-mail on May 9, 2006.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Radium-226 Analysis

No problems were encountered during the course of the analyses.

2.4 Radium-228 Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.6 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.
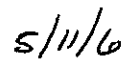
2.7 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion   5/11/6
Melissa C. Mannion   Date
Senior Program Manager

E B E R L I N E   S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K0263

SDG <u>7403</u> Contact <u>Melissa C. Mannion</u>	Client <u>Hanford</u> Contract <u>No. 630</u> Case no <u>SDG K0263</u>

S U M M A R Y   D A T A   S E C T I O N

N.J. Verville
Prepared by

Melissa Mannion
Reviewed by

Lab id	<u>EBRLNE</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-TOC</u>
Version	<u>3.06</u>
Report date	<u>05/09/06</u>

SDG 7403
Contact Melissa C. Mannion

R E P O R T   G U I D E

Client Hanford
Contract No. 630
Case no SDG K0263

A B O U T   T H E   D A T A   S U M M A R Y   S E C T I O N

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/09/06

SDG <u>7403</u>

Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

Client <u>Hanford</u>

Contract <u>No. 630</u>

Case no <u>SDG K0263</u>

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-RG</u>

Version <u>3.06</u>

Report date <u>05/09/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

LAB SAMPLE SUMMARY

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R603125-01	J11J28	199-N-26	WATER		RC-048	RC-048-367	03/20/06 11:02
R603125-02	Lab Control Sample		WATER		RC-048		
R603125-03	Method Blank		WATER		RC-048		
R603125-04	Duplicate (R603125-01)	199-N-26	WATER		RC-048		03/20/06 11:02
R603125-05	Spike (R603125-01)	199-N-26	WATER		RC-048		03/20/06 11:02

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 05/09/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0263

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7403	RC-048-367	J11J28	WATER		5 L		03/22/06	2	R603125-01	7403-001
		Method Blank	WATER						R603125-03	7403-003
		Lab Control Sample	WATER						R603125-02	7403-002
		Duplicate (R603125-01)	WATER		5 L		03/22/06	2	R603125-04	7403-004
		Spike (R603125-01)	WATER		5 L		03/22/06	2	R603125-05	7403-005

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 05/09/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0263

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALI-FIERS
Alpha Spectroscopy												
TH	WATER	Thorium, Isotopic in Water	7131-119	5.0	1			1	1	1/1		
U	WATER	Uranium, Isotopic in Water	7131-119	5.0	1			1	1	1/1		
Beta Counting												
AC	WATER	Radium 228 in Water	7131-119	5.0	1			1	1	1/1		
SR	WATER	Total Strontium in Water	7131-119	10.0	1			1	1	1/1		
Gamma Scan												
GAM	WATER	Gamma Emitters	7131-119	15.0	1			1	1	1/1		
Liquid Scintillation Counting												
H	WATER	Tritium in Water	7131-119	10.0	1			1	1	1/1	1/1	X
Radon Counting												
RA	WATER	Radium 226 in Water	7131-119	5.0	1			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 05/09/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0263

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R603125-01	J11J28			7403-001	AC		04/19/06	04/26/06	MWT	Radium 228 in Water
03/20/06	199-N-26		WATER	7403-001	GAM		05/06/06	05/08/06	CSS	Gamma Emitters
03/22/06	RC-048-367	RC-048		7403-001	H		04/26/06	05/03/06	MWT	Tritium in Water
				7403-001	RA		04/18/06	04/25/06	MWT	Radium 226 in Water
				7403-001	SR		04/13/06	04/17/06	MWT	Total Strontium in Water
				7403-001	TH		04/24/06	05/01/06	MWT	Thorium, Isotopic in Water
				7403-001	U		04/15/06	04/17/06	MWT	Uranium, Isotopic in Water
R603125-02	Lab Control Sample			7403-002	AC		04/19/06	04/26/06	MWT	Radium 228 in Water
			WATER	7403-002	GAM		05/07/06	05/08/06	CSS	Gamma Emitters
		RC-048		7403-002	H		04/26/06	05/03/06	MWT	Tritium in Water
				7403-002	RA		04/18/06	04/25/06	MWT	Radium 226 in Water
				7403-002	SR		04/13/06	04/17/06	MWT	Total Strontium in Water
				7403-002	TH		04/24/06	05/01/06	MWT	Thorium, Isotopic in Water
				7403-002	U		04/15/06	04/17/06	MWT	Uranium, Isotopic in Water
R603125-03	Method Blank			7403-003	AC		04/19/06	04/26/06	MWT	Radium 228 in Water
			WATER	7403-003	GAM		05/07/06	05/08/06	CSS	Gamma Emitters
		RC-048		7403-003	H		04/26/06	05/03/06	MWT	Tritium in Water
				7403-003	RA		04/18/06	04/25/06	MWT	Radium 226 in Water
				7403-003	SR		04/13/06	04/17/06	MWT	Total Strontium in Water
				7403-003	TH		04/24/06	05/01/06	MWT	Thorium, Isotopic in Water
				7403-003	U		04/15/06	04/17/06	MWT	Uranium, Isotopic in Water
R603125-04	Duplicate (R603125-01)			7403-004	AC		04/19/06	04/26/06	MWT	Radium 228 in Water
03/20/06	199-N-26		WATER	7403-004	GAM		05/07/06	05/08/06	CSS	Gamma Emitters
03/22/06		RC-048		7403-004	H		04/26/06	05/03/06	MWT	Tritium in Water
				7403-004	RA		04/18/06	04/25/06	MWT	Radium 226 in Water
				7403-004	SR		04/13/06	04/17/06	MWT	Total Strontium in Water
				7403-004	TH		04/24/06	05/01/06	MWT	Thorium, Isotopic in Water
				7403-004	U		04/15/06	04/17/06	MWT	Uranium, Isotopic in Water
R603125-05	Spike (R603125-01)			7403-005	H		04/27/06	05/03/06	MWT	Tritium in Water
03/20/06	199-N-26		WATER							
03/22/06		RC-048								

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/09/06

SDG 7403	
Contact Melissa C. Mannion	

WORK SUMMARY, cont.

Client Hanford	
Contract No. 630	
Case no SDG K0263	

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AC	RC-048	Radium 228 in Water	RAISO_SEP_GPC	1			1	1	1		4
GAM	RC-048	Gamma Emitters	GAMMA_GS	1			1	1	1		4
H	RC-048	Tritium in Water	906.0_H3_LSC	1			1	1	1	1	5
RA	RC-048	Radium 226 in Water	903.1_RA226_LUC	1			1	1	1		4
SR	RC-048	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TH	RC-048	Thorium, Isotopic in Water	THISO_IE_PLATE_AEA	1			1	1	1		4
U	RC-048	Uranium, Isotopic in Water	UISO_PLATE_AEA	1			1	1	1		4
TOTALS				7			7	7	7	1	29

Lab id EBRLNE	
Protocol Hanford	
Version Ver 1.0	
Form DVD-LWS	
Version 3.06	
Report date 05/09/06	

SDG <u>7403</u>   Client/Case no <u>Hanford</u>   SDG <u>K0263</u>
Contact <u>Melissa C. Mannion</u>   Contract <u>No. 630</u>

Lab sample id <u>R603125-03</u>   Client sample id <u>Method Blank</u>
Dept sample id <u>7403-003</u>   Material/Matrix _____ <u>WATER</u>
                                        SAF No <u>RC-048</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	-624	1000	<u>1700</u>	400	U	H
Total Strontium	SR-RAD	-0.056	0.29	0.62	2.0	U	SR
Radium 228	15262-20-1	0.184	0.72	1.5	3.0	U	AC
Thorium 228	14274-82-9	0	0.096	0.37		U	TH
Thorium 230	14269-63-7	0.143	0.19	0.37	1.0	U	TH
Thorium 232	TH-232	0.048	0.096	0.37	1.0	U	TH
Uranium 233/234	U-233/234	0	0.091	0.35	1.0	U	U
Uranium 235	15117-96-1	0	0.11	0.42	1.0	U	U
Uranium 238	U-238	0	0.091	0.35	1.0	U	U
Radium-226	13982-63-3	0.460	0.40	0.62	2.0	U	RA
Potassium 40	13966-00-2	U		58		U	GAM
Cobalt 60	10198-40-0	U		5.6	25	U	GAM
Cesium 137	10045-97-3	U		5.2	15	U	GAM
Radium 226	13982-63-3	U		9.0		U	GAM
Radium 228	15262-20-1	U		21		U	GAM
Europium 152	14683-23-9	U		12	50	U	GAM
Europium 154	15585-10-1	U		16	50	U	GAM
Europium 155	14391-16-3	U		8.0	50	U	GAM
Thorium 228	14274-82-9	U		7.4		U	GAM
Thorium 232	TH-232	U		21		U	GAM
Uranium 235	15117-96-1	U		16		U	GAM
Uranium 238	U-238	U		630		U	GAM
Americium 241	14596-10-2	U		6.1		U	GAM
Beryllium 7	13966-02-4	U		32		U	GAM
Ruthenium 106	13967-48-1	U		42		U	GAM
Antimony 125	14234-35-6	U		11		U	GAM
Cesium 134	13967-70-9	U		6.0		U	GAM

100&300Area Component RCBRA Water Sa

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/09/06</u>

7403-003   Method Blank

B L A N K ,   c o n t .

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SDG 7403                     Client/Case no Hanford              SDG K0263
Contact Melissa C. Mannion   Contract No. 630

Lab sample id R603125-03     Client sample id Method Blank
Dept sample id 7403-003      Material/Matrix                      WATER
                             SAF No RC-048
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QC-BLANK #56637

METHOD BLANKS
      Page 2
SUMMARY DATA SECTION
      Page 9

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 05/09/06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

LAB CONTROL SAMPLE

SDG 7403	Client/Case no Hanford	SDG K0263
Contact Melissa C. Mannion	Contract No. 630	
Lab sample id R603125-02	Client sample id Lab Control Sample	
Dept sample id 7403-002	Material/Matrix	WATER
	SAF No RC-048	

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	21300	1500	1600	400		H	22100	880	96	81-119	80-120
Total Strontium	22.3	1.2	0.51	2.0		SR	21.6	0.86	103	81-119	80-120
Radium 228	16.4	1.1	1.7	3.0		AC	16.4	0.66	100	86-114	80-120
Thorium 230	19.3	3.6	0.43	1.0		TH	20.2	0.81	96	72-128	80-120
Uranium 233/234	19.4	2.0	0.92	1.0		U	18.6	0.74	104	81-119	80-120
Uranium 235	15.6	1.7	0.22	1.0		U	15.1	0.60	103	80-120	80-120
Uranium 238	20.3	2.1	0.89	1.0		U	20.2	0.81	100	82-118	80-120
Radium-226	45.7	2.8	0.75	2.0		RA	50.3	2.0	91	88-112	80-120
Cobalt 60	445	20	12	25		GAM	474	19	94	77-123	80-120
Cesium 137	487	18	13	15		GAM	492	20	99	76-124	80-120

100&300Area Component RCBRA Water Sa

QC-LCS #56636

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LCS
Version	3.06
Report date	05/09/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

7403-004

J11J28

DUPLICATE

SDG <u>7403</u>	Client/Case no <u>Hanford</u>　　　　<u>SDG K0263</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>
DUPLICATE　　　　　　　　**ORIGINAL**	
Lab sample id <u>R603125-04</u>　　Lab sample id <u>R603125-01</u>	Client sample id <u>J11J28</u>
Dept sample id <u>7403-004</u>　　Dept sample id <u>7403-001</u>	Location/Matrix <u>199-N-26</u>　　　　<u>WATER</u>
Received <u>03/22/06</u>	Collected/Volume <u>03/20/06 11:02</u>　　<u>5 L</u>
	Custody/SAF No <u>RC-048-367</u>　　<u>RC-048</u>

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	DER σ
Tritium	142	110	170	400	U	H	122	100	170	U	-		0.3
Total Strontium	0.174	0.28	0.54	2.0	U	SR	0.094	0.31	0.62	U	-		0.4
Radium 228	0.402	0.86	1.6	3.0	U	AC	-0.011	0.70	1.7	U	-		0.7
Thorium 228	0.118	0.12	0.23		U	TH	0	0.10	0.38	U	-		1.5
Thorium 230	-0.029	0.12	0.22	1.0	U	TH	0.100	0.20	0.38	U	-		1.1
Thorium 232	0	0.059	0.22	1.0	U	TH	0.100	0.10	0.38	U	-		1.7
Uranium 233/234	0.382	0.17	0.13	1.0		U	0.448	0.20	0.19		16	95	0.5
Uranium 235	0.040	0.040	0.15	1.0	U	U	0.030	0.060	0.23	U	-		0.3
Uranium 238	0.532	0.20	0.13	1.0		U	0.548	0.25	0.19		3	90	0.1
Radium-226	<u>-0.324</u>	0.26	0.63	2.0	U	RA	-0.078	0.28	0.58	U	-		1.3
Potassium 40	U		320		U	GAM	U		280	U	-		0.2
Cobalt 60	U		13	25	U	GAM	U		15	U	-		0.2
Cesium 137	U		13	15	U	GAM	U		13	U	-		0
Radium 226	U		26		U	GAM	U		25	U	-		0.1
Radium 228	U		56		U	GAM	U		54	U	-		0.1
Europium 152	U		32	50	U	GAM	U		30	U	-		0.1
Europium 154	U		35	50	U	GAM	U		36	U	-		0
Europium 155	U		40	50	U	GAM	U		32	U	-		0.3
Thorium 228	U		19		U	GAM	U		16	U	-		0.2
Thorium 232	U		56		U	GAM	U		54	U	-		0.1
Uranium 235	U		48		U	GAM	U		40	U	-		0.3
Uranium 238	U		1400		U	GAM	U		1400	U	-		0
Americium 241	U		96		U	GAM	U		55	U	-		0.7
Beryllium 7	U		160		U	GAM	U		150	U	-		0.1
Ruthenium 106	U		110		U	GAM	U		93	U	-		0.2
Antimony 125	U		28		U	GAM	U		25	U	-		0.2
Cesium 134	U		13		U	GAM	U		16	U	-		0.3

100&300Area Component RCBRA Water Sa

Lab id	<u>EBRLNE</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-DUP</u>
Version	<u>3.06</u>
Report date	<u>05/09/06</u>

```
          SDG 7403                                          Client/Case no Hanford            SDG K0263
      Contact Melissa C. Mannion                                 Contract No. 630
              DUPLICATE                      ORIGINAL
Lab sample id R603125-04          Lab sample id R603125-01     Client sample id J11J28
Dept sample id 7403-004           Dept sample id 7403-001      Location/Matrix 199-N-26              WATER
                                     Received 03/22/06         Collected/Volume 03/20/06 11:02    5 L
                                                               Custody/SAF No RC-048-367     RC-048
```

QC-DUP#1 56638

DUPLICATES
Page 2
SUMMARY DATA SECTION
Page 12

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

MATRIX SPIKE

SDG 7403
Contact Melissa C. Mannion
MATRIX SPIKE

Lab sample id R603125-05
Dept sample id 7403-005

ORIGINAL

Lab sample id R603125-01
Dept sample id 7403-001
Received 03/22/06

Client/Case no Hanford   SDG K0263
Contract No. 630

Client sample id J11J28
Location/Matrix 199-N-26   WATER
Collected/Volume 03/20/06 11:02   5 L
Custody/SAF No RC-048-367   RC-048

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	24200	520	230	400	X	H	25400	1000	122	100	95	84-116	60-140

100&300Area Component RCBRA Water Sa

QC-MS#1 56639

MATRIX SPIKES
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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 05/09/06

SDG 7403	Client/Case no Hanford	SDG K0263
Contact Melissa C. Mannion	Contract No. 630	
Lab sample id R603125-01	Client sample id J11J28	
Dept sample id 7403-001	Location/Matrix 199-N-26	WATER
Received 03/22/06	Collected/Volume 03/20/06 11:02 5 L	
	Custody/SAF No RC-048-367 RC-048	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Tritium	10028-17-8	122	100	170	400	U	H
Total Strontium	SR-RAD	0.094	0.31	0.62	2.0	U	SR
Radium 228	15262-20-1	-0.011	0.70	1.7	3.0	U	AC
Thorium 228	14274-82-9	0	0.10	0.38		U	TH
Thorium 230	14269-63-7	0.100	0.20	0.38	1.0	U	TH
Thorium 232	TH-232	0.100	0.10	0.38	1.0	U	TH
Uranium 233/234	U-233/234	0.448	0.20	0.19	1.0		U
Uranium 235	15117-96-1	0.030	0.060	0.23	1.0	U	U
Uranium 238	U-238	0.548	0.25	0.19	1.0		U
Radium-226	13982-63-3	-0.078	0.28	0.58	2.0	U	RA
Potassium 40	13966-00-2	U		280		U	GAM
Cobalt 60	10198-40-0	U		15	25	U	GAM
Cesium 137	10045-97-3	U		13	15	U	GAM
Radium 226	13982-63-3	U		25		U	GAM
Radium 228	15262-20-1	U		54		U	GAM
Europium 152	14683-23-9	U		30	50	U	GAM
Europium 154	15585-10-1	U		36	50	U	GAM
Europium 155	14391-16-3	U		32	50	U	GAM
Thorium 228	14274-82-9	U		16		U	GAM
Thorium 232	TH-232	U		54		U	GAM
Uranium 235	15117-96-1	U		40		U	GAM
Uranium 238	U-238	U		1400		U	GAM
Americium 241	14596-10-2	U		55		U	GAM
Beryllium 7	13966-02-4	U		150		U	GAM
Ruthenium 106	13967-48-1	U		93		U	GAM
Antimony 125	14234-35-6	U		25		U	GAM
Cesium 134	13967-70-9	U		16		U	GAM

100&300Area Component RCBRA Water Sa

DATA SHEETS
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SUMMARY DATA SECTION
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN WATER

ALPHA SPECTROSCOPY

Test TH   Matrix WATER
SDG 7403
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0263

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230	
Preparation batch 7131-119						
R603125-01			7403-001	J11J28	U	
R603125-02			7403-002	Lab Control Sample	ok	
R603125-03			7403-003	Method Blank	U	
R603125-04			7403-004	Duplicate (R603125-01)	-	U

Nominal values and limits from method   RDLs (pCi/L)   1.0

100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7131-119			2σ prep error 5.0 %	Reference Lab Notebook 7131 pg. 119												
R603125-01			J11J28	0.38	0.500			36		156			35	04/21/06	04/24	SS-066
R603125-02			Lab Control Sample	0.43	0.500			30		156				04/21/06	04/24	SS-027
R603125-03			Method Blank	0.37	0.500			35		156				04/21/06	04/24	SS-029
R603125-04			Duplicate (R603125-01)	0.22	0.500			59		156			35	04/21/06	04/24	SS-031
Nominal values and limits from method				1.0	0.500			20-110		150	100		180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-062	Sample Aliquoting, rev 0
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 4 SAMPLES	MDA 0.35 ± 0.18
	YIELD 40 ± 26

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/09/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN WATER

ALPHA SPECTROSCOPY

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
Preparation batch 7131-119											
R603125-01			7403-001	J11J28	0.448	U	0.548	82	52	5	11
R603125-02			7403-002	Lab Control Sample	ok	ok	ok				
R603125-03			7403-003	Method Blank	U	U	U				
R603125-04			7403-004	Duplicate (R603125-01)	ok	- U	ok	72	42	8	8
Nominal values and limits from method RDLs (pCi/L)					1.0	1.0	1.0	100		4	
100&300Area Component RCBRA Water Sa								Averages 77		6	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7131-119 2σ prep error 5.0 % Reference Lab Notebook 7131 pg. 119																
R603125-01			J11J28	0.23	0.500			86		122			26	04/15/06	04/15	SS-032
R603125-02			Lab Control Sample	0.92	0.500			91		122				04/15/06	04/15	SS-033
R603125-03			Method Blank	0.42	0.500			48		122				04/15/06	04/15	SS-034
R603125-04			Duplicate (R603125-01)	0.15	0.500			88		157			26	04/15/06	04/15	SS-035
Nominal values and limits from method				1.0	0.500			30-105	100	100			180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-062	Sample Aliquoting, rev 0
	CP-040	Environmental Water Dissolution, rev 9
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	0.43	±	0.69
FOR 4 SAMPLES	YIELD	78	±	41

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

LAB METHOD SUMMARY

RADIUM 228 IN WATER

BETA COUNTING

Test AC Matrix WATER	
SDG 7403	
Contact Melissa C. Mannion	

Client Hanford	
Contract No. 630	
Contract SDG K0263	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Radium 228	
Preparation batch 7131-119						
R603125-01			7403-001	J11J28	U	
R603125-02			7403-002	Lab Control Sample	ok	
R603125-03			7403-003	Method Blank	U	
R603125-04			7403-004	Duplicate (R603125-01)	-	U

Nominal values and limits from method	RDLs (pCi/L)	3.0
100&300Area Component RCBRA Water Sa		

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7131-119 2σ prep error 5.0 % Reference Lab Notebook 7131 pg. 119																
R603125-01			J11J28	1.7	0.500			68		150			30	04/19/06	04/19	GRB-201
R603125-02			Lab Control Sample	1.7	0.500			56		150				04/19/06	04/19	GRB-202
R603125-03			Method Blank	1.5	0.500			66		150				04/19/06	04/19	GRB-203
R603125-04			Duplicate (R603125-01)	1.6	0.500			68		150			30	04/19/06	04/19	GRB-204

Nominal values and limits from method				3.0	0.500			100			180					

PROCEDURES	REFERENCE	RAISO_SEP_GPC
	SPP-062	Sample Aliquoting, rev 0
	CP-702	Radium-228 in Water, rev 9

AVERAGES ± 2 SD	MDA	1.6	±	0.19
FOR 4 SAMPLES	YIELD	64	±	11

Lab id EBRLNE	
Protocol Hanford	
Version Ver 1.0	
Form DVD-LMS	
Version 3.06	
Report date 05/09/06	

Test <u>SR</u> Matrix <u>WATER</u>
SDG <u>7403</u>
Contact <u>Melissa C. Mannion</u>

LAB METHOD SUMMARY
TOTAL STRONTIUM IN WATER
BETA COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG K0263</u>

RESULTS

LAB SAMPLE ID	RAW TEST	SUP-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation batch 7131-119						
R603125-01			7403-001	J11J28	U	
R603125-02			7403-002	Lab Control Sample	ok	
R603125-03			7403-003	Method Blank	U	
R603125-04			7403-004	Duplicate (R603125-01)	-	U

Nominal values and limits from method   RDLs (pCi/L)   2.0
100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUP-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7131-119			2σ prep error 10.0 % Reference Lab Notebook 7131 pg. 119													
R603125-01			J11J28	0.62	0.500			80		100			24	04/13/06	04/13	GRB-232
R603125-02			Lab Control Sample	0.51	0.500			75		100				04/13/06	04/13	GRB-223
R603125-03			Method Blank	0.62	0.500			75		100				04/13/06	04/13	GRB-202
R603125-04			Duplicate (R603125-01)	0.54	0.500			86		100			24	04/13/06	04/13	GRB-203

Nominal values and limits from method   2.0   0.500   35-105   100   180

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-062	Sample Aliquoting, rev 0
	CP-380	Strontium in Water Samples, rev 2

AVERAGES ± 2 SD	MDA	<u>0.57</u> ± <u>0.11</u>
FOR 4 SAMPLES	YIELD	<u>79</u> ± <u>10</u>

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

LAB METHOD SUMMARY

GAMMA EMITTERS

GAMMA SCAN

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 7131-119								
R603125-01			7403-001	J11J28	U		U	
R603125-02			7403-002	LCS (QC ID=56636)	ok		ok	
R603125-03			7403-003	BLK (QC ID=56637)	U		U	
R603125-04			7403-004	Duplicate (R603125-01)	-	U	-	U

Nominal values and limits from method   RDLs (pCi/L)   25   15

100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7131-119 2σ prep error 15.0 % Reference Lab Notebook 7131 pg. 119																
R603125-01			J11J28	57	0.500					308			47	04/04/06	05/06	MB,08,00
R603125-02			LCS (QC ID=56636)	13	0.500					1069				04/04/06	05/07	MB,05,00
R603125-03			BLK (QC ID=56637)	18	0.500					1069				04/04/06	05/07	MB,07,00
R603125-04			Duplicate (R603125-01)	74	0.500					1068			48	04/04/06	05/07	01,02,00
			(QC ID=56638)													

Nominal values and limits from method   15   0.500   100   180

AVERAGES ± 2 SD   MDA 40 ± 60

FOR 4 SAMPLES   YIELD ___ ± ___

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

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EBERLINE SERVICES/RICHMOND

Test _H_ Matrix WATER	**LAB METHOD SUMMARY**	Client Hanford
SDG 7403	TRITIUM IN WATER	Contract No. 630
Contact Melissa C. Mannion	LIQUID SCINTILLATION COUNTING	Contract SDG K0263

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 7131-119						
R603125-01			7403-001	J11J28	U	
R603125-02			7403-002	Lab Control Sample	ok	
R603125-03			7403-003	Method Blank	U	
R603125-04			7403-004	Duplicate (R603125-01)	-	U
R603125-05			7403-005	Spike (R603125-01)	ok	X

Nominal values and limits from method   RDLs (pCi/L)   400
100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7131-119			2σ prep error 10.0 % Reference Lab Notebook 7131 pg. 119													
R603125-01			J11J28	170	0.0100			100		120			37	04/26/06	04/26	LSC-004
R603125-02			Lab Control Sample	1600	0.0100			10		120				04/26/06	04/26	LSC-004
R603125-03			Method Blank	1700	0.0100			10		120				04/26/06	04/26	LSC-004
R603125-04			Duplicate (R603125-01)	170	0.0100			100		120			37	04/26/06	04/26	LSC-004
R603125-05			Spike (R603125-01)	230	0.0350			28		67			38	04/26/06	04/27	LSC-004

Nominal values and limits from method   400   0.0100   25   180

PROCEDURES	REFERENCE	906.0_H3_LSC		AVERAGES ± 2 SD	MDA 770 ± 1600
	CP-210	Tritium in Water Samples by Distillation, rev 8		FOR 5 SAMPLES	YIELD 50 ± 93

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Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0263

| Test RA Matrix WATER |
| SDG 7403 |
| Contact Melissa C. Mannion |

LAB METHOD SUMMARY

RADIUM 226 IN WATER

RADON COUNTING

| Client Hanford |
| Contract No. 630 |
| Contract SDG K0263 |

RESULTS

LAB SAMPLE ID	RAW TEST FIX	SUF-PLANCHET	CLIENT SAMPLE ID	Radium-226	
Preparation batch 7131-119					
R603125-01		7403-001	J11J28	U	
R603125-02		7403-002	Lab Control Sample	ok	
R603125-03		7403-003	Method Blank	U	
R603125-04		7403-004	Duplicate (R603125-01)	-	U

Nominal values and limits from method   RDLs (pCi/L)   2.0
100&300Area Component RCBRA Water Sa

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST FIX	SUF-CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7131-119		2σ prep error 5.0 % Reference Lab Notebook 7131 pg. 119													
R603125-01		J11J28	0.58	0.100			100		74			29	04/18/06	04/18	RN-011
R603125-02		Lab Control Sample	0.75	0.100			100		55				04/18/06	04/18	RN-016
R603125-03		Method Blank	0.62	0.100			100		74				04/18/06	04/18	RN-013
R603125-04		Duplicate (R603125-01)	0.63	0.100			100		74			29	04/18/06	04/18	RN-015

Nominal values and limits from method   2.0   0.100   20-105   70   180

PROCEDURES	REFERENCE	903.1_RA226_LUC
	SPP-062	Sample Aliquoting, rev 0
	CP-881	Radium-226 in Water and Dissolved Samples, rev 1

| AVERAGES ± 2 SD | MDA 0.64 ± 0.15 |
| FOR 4 SAMPLES | YIELD 100 ± 0 |

| Lab id EBRLNE |
| Protocol Hanford |
| Version Ver 1.0 |
| Form DVD-LMS |
| Version 3.06 |
| Report date 05/09/06 |

SAMPLE DELIVERY GROUP K0263

SDG 7403	
Contact Melissa C. Mannion	

R E P O R T   G U I D E

Client Hanford
Contract No. 630
Case no SDG_K0263

S A M P L E   S U M M A R Y

The Sample and QC Summary Reports show all samples, including QC
samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the
corresponding lab sample identification. The QC Summary Report shows at
the sample level how the lab organized the samples into batches and
generated QC samples. The Preparation Batch and Method Summary Reports
show this at the analysis level.

The following notes apply to these reports:

*   LAB SAMPLE ID is the lab's primary identification for a sample.

*   DEPARTMENT SAMPLE ID is an alternate lab id, for example one
    assigned by a radiochemistry department in a lab.

*   CLIENT SAMPLE ID is the client's primary identification for a
    sample. It includes any sample preparation done by the client
    that is necessary to identify the sample.

*   QC BATCH is a lab assigned code that groups samples to be
    processed and QCed together. These samples should have similar
    matrices.

    QC BATCH is not necessarily the same as SDG, which reflects
    samples received and reported together.

*   All Lab Control Samples, Method Blanks, Duplicates and Matrix
    Spikes are shown that QC any of the samples. Due to possible
    reanalyses, not all results for all these QC samples may be
    relevant to the SDG. The Lab Control Sample, Method Blank,
    Duplicate, Matrix Spike and Method Summary Reports detail these
    relationships.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/09/06

SAMPLE DELIVERY GROUP K0263

SDG 7403
Contact Melissa C. Mannion

R E P O R T   G U I D E

Client Hanford
Contract No. 630
Case no SDG K0263

P R E P A R A T I O N   B A T C H   S U M M A R Y

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

Lab id EBRLNE
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REPORT GUIDE

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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SAMPLE DELIVERY GROUP K0263

SDG <u>7403</u>

Contact <u>Melissa C. Mannion</u>

R E P O R T   G U I D E

Client <u>Hanford</u>

Contract <u>No. 630</u>

Case no <u>SDG K0263</u>

D A T A   S H E E T

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

   The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U   The RESULT is less than the MDA (Minimum Detectable Activity).

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Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

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Version <u>3.06</u>

Report date <u>05/09/06</u>

E B E R L I N E   S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K0263

SDG <u>7403</u>
Contact <u>Melissa C. Mannion</u>

G U I D E ,   c o n t .

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG_K0263</u>

D A T A   S H E E T

If the MDA is blank, the ERROR is used as the limit.

J   The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B   A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L   Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H   Similar to 'L' except the recovery was high.

P   The RESULT is 'preliminary'.

X   Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2   There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

*   An MDA is underlined if it is bigger than its RDL.

REPORT GUIDES
    Page 5
SUMMARY DATA SECTION
    Page 26

Lab id	<u>EBRLNE</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-RG</u>
Version	<u>3.06</u>
Report date	<u>05/09/06</u>

SDG <u>7403</u>
Contact <u>Melissa C. Mannion</u>

G U I D E ,   c o n t .

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG K0263</u>

D A T A   S H E E T

* An ERROR is underlined if the 1.645 sigma counting error is
  bigger than both the MDA and the RESULT, implying that the MDA
  may not be a good estimate of the 'real' minimum detectable
  activity.

* A negative RESULT is underlined if it is less than the negative
  of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if
  greater than its MDA. If the MDA is blank, the 2 sigma counting
  error is used in the comparison.

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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SDG 7403

Contact Melissa C. Mannion

R E P O R T   G U I D E

Client Hanford

Contract No. 630

Case no SDG_K0263

L A B   C O N T R O L   S A M P L E

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 05/09/06

SAMPLE DELIVERY GROUP K0263

SDG <u>7403</u>	
Contact <u>Melissa C. Mannion</u>	

R E P O R T   G U I D E

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG K0263</u>

D U P L I C A T E

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

   If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

   If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

   For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

   If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

   This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

   1. A fixed percentage specified in the protocol.

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SDG 7403
Contact Melissa C. Mannion

G U I D E ,   c o n t .

Client Hanford
Contract No. 630
Case no SDG_K0263

D U P L I C A T E

2. A protocol factor (typically 2) times the average MDA as
   a percent of the average result. This limit applies
   when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by
  the Difference Error Ratio (DER), which is the absolute value
  of the difference of the results divided by the quadratic sum of
  their one sigma errors, the same errors as used in the first
  limit.

    Except for differences due to rounding, the DER is the
    same as the RPD divided by the first RPD limit with the
    limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor,
  typically 2 or 3, shown in the header for the first RPD limit.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/09/06

SDG <u>7403</u>
Contact <u>Melissa C. Mannion</u>

R E P O R T   G U I D E

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG K0263</u>

M A T R I X   S P I K E

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

    If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

    An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

    1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

       If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

    2. The error of ADDED.

    3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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SDG <u>7403</u>

Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

Client <u>Hanford</u>

Contract <u>No. 630</u>

Case no <u>SDG K0263</u>

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id <u>EBRLNE</u>

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Version <u>Ver 1.0</u>

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Report date <u>05/09/06</u>

SAMPLE DELIVERY GROUP K0263

SDG 7403
Contact Melissa C. Mannion

R E P O R T   G U I D E

Client Hanford
Contract No. 630
Case no SDG K0263

M E T H O D   S U M M A R Y

The Method Summary Report has two tables. One shows up to five results
measured using one method. The other has performance data for the
method. There is one report for each TEST, as used on the Data Sheet
Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation
  batch. A preparation batch is a group of aliquots prepared at
  roughly the same time in one work area of the lab using the same
  method.

  There should be Lab Control Sample and Method Blank results in
  each preparation batch since this close correspondence makes the
  QC meaningful. Depending on lab policy, Duplicates need not
  occur in each batch since they QC sample dependencies such as
  matrix effects.

* The RAW TEST column shows the test code used in the raw data to
  identify a particular analysis if it is different than the test
  code in the header of the report. This occurs in special cases
  due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code
  and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by
  just 'U' on this report. If it is greater than or equal to the
  RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate
  possible contamination of other samples in the preparation
  batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No
  data, LOW or HIGH, with the last two underlined. 'No data'

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M E T H O D   S U M M A R Y

means no amount ADDED was specified. 'LOW' and 'HIGH'
correspond to when the recovery is underlined on the Lab Control
Sample or Matrix Spike Report. See these reports for supporting
data.

* Duplicate sample results are shown as: ok, No data, or OUT, with
  the last two underlined. 'No data' means there was no original
  sample data found for this duplicate. 'OUT' corresponds to when
  the RPD is underlined on the Duplicate Report. See this report
  for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one
  result measured by the reported method and the MDA shown is the
  largest MDA. If not all these results have the same RDL, the
  MAX MDA reflects only those results with RDL equal to the
  smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified
  for the method.

* Prepareation factors are underlined if greater than the nominal
  value specified for the method.

* Dilution factors are underlined if greater than the nominal
  value specified for the method.

* Residues are underlined if outside the range specified for the
  method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of
  recovery depending on the method, are underlined if outside the
  range specified for the method.

* Efficiencies are underlined if outside the range specified for
  the method. Efficiencies are detector and geometry dependent so
  this test is only approximate.

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GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_K0263

M E T H O D   S U M M A R Y

* Count times are underlined if less than the nominal value
  specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if
  greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are
  greater than the method specified limit. Tracer drifts are
  not printed if percent moistures are.

* Days Held are underlined if greater than the holding time
  specified in the protocol.

* Analysis dates are underlined if before their planchet's
  preparation date or, if a limit is specified, too far after
  it.

For some methods, ratios as percentages and error estimates for them are
computed for pairs of results. A ratio column header like '1÷3' means
the ratio of the first result column and the third result column.

   Ratios are not computed for Lab Control Sample, Method Blank or
   Matrix Spike results since their matrices are not necessarily
   similar to client samples'.

The error estimate for a ratio of results from one planchet reflects
only counting errors since other errors should be correlated. For a
ratio involving different planchets, if QC limits are computed based on
total errors, the error for the ratio allows for the preparation errors
for the planchets.

The ratio is underlined (out of spec) if the absolute value of its
difference from the nominal value is greater than its error estimate.
If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the
sum of other Alpha or Beta emitters. This sum includes all relevant

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SDG <u>7403</u>

Contact <u>Melissa C. Mannion</u>

G U I D E ,   c o n t .

Client <u>Hanford</u>

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M E T H O D   S U M M A R Y

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Collector DUPLEX F. M. HALL	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location 199-N-26 KD263 (7403)		SAF No. RC-048	Air Quality ☐	45 Days
Ice Chest No. ERC-99-063	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A060318		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS
POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage
NONE

	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS		Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium [Thorium-232]	Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time									

Sample No.	Matrix *	Sample Date	Sample Time							
J11J28	WATER	MAR 20 2006	1102	X	X	X	X	X	X	

CHAIN OF POSSESSION

Relinquished/Removed From F. M. HALL MAR 20 2006	Date/Time 1250	Received By/Stored In WCH S. JOALE	Date/Time 1250 3-20-06
Relinquished By/Removed From JOALE 32006 1350	Date/Time	Received By/Stored In REF 2A 32006	Date/Time 1350
Relinquished By/Removed From 3728 #2A 3-21-06 0900	Date/Time	Received By/Stored In TR Edmundson JR Elmundn	Date/Time 0900 3-21-06
Relinquished By/Removed From WCH TR Edmundson JR Elmundn 3-21-06	Date/Time 1500	Received By/Stored In FED EX	Date/Time
Relinquished By/Removed From FED EX	Date/Time	Received By/Stored In Wu	Date/Time 9:30 3/27/06
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

Personnel not available to relinquish samples from 3728
Ref # 2A on 3/21/06

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

EBERLINE
SERVICES

Client: __W.C. HANFORD__   City __RICHLAND__   State __WA__

Date/Time received __3/22/06 9:30__ CoC No. __RC-048-367__

Container I.D. No. __ERC-99-063__ Requested TAT (Days) __45__ P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact?   Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact?   Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed?   Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: __1__   Sample Matrix __W__
7. Number of containers per sample: __6__   (Or see CoC _____)
8. Samples are in correct container   Yes [X] No [ ]
9. Paperwork agrees with samples?   Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [X] Not preserved [X] pH __1/7__ Preservative _____
13. Describe any anomalies:

    _____

    _____

    _____

14. Was P.M. notified of any anomalies?   Yes [ ] No [ ] Date _____
15. Inspected by __MFW__   Date: __03/27/06__ Time: __10:45__

Customer Sample No.	cpm	mR/hr	Wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. _____   Calibration date _____
Alpha Meter Ser. No. _____   Calibration date _____
Beta/Gamma Meter Ser. No. _____   Calibration date _____

LvLI

LIONVILLE LABORATORY INC.

9 May 2006

Joan Kessner
WC-Hanford
3190 Washington Way
MSIN H9-03
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0603L574
SDG #	K0263
SAF #	RC-048
Date Received	3/22/06
# Samples	1
Mat\rix	Water
Volatiles	
Semivolatiles	X
Pest/PCB	X
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-048 K0263

DATE RECEIVED: 03/22/06   LVL LOT # :0603____

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11J28	001	W	06LE0230	03/20/06	03/27/06	03/31/06
J11J28	001 MS	W	06LE0230	03/20/06	03/27/06	03/31/06
J11J28	001 MSD	W	06LE0230	03/20/06	03/27/06	03/31/06

LAB QC:

SBLKVL	MB1	W	06LE0230	N/A	03/27/06	03/29/06
SBLKVL	MB1 BS	W	06LE0230	N/A	03/27/06	03/29/06
SBLKVL	MB1 BSD	W	06LE0230	N/A	03/27/06	03/29/06

LVLI
LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-048
LVL #: 0603L574
SDG/SAF # K0263/RC-048

W.O. #: 11343-606-001-9999-00
Date Received: 03-22-2006

SEMIVOLATILE

One (1) water sample was collected on 03-20-2006.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3520C on 03-27-2006 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 03-29,31-2006.
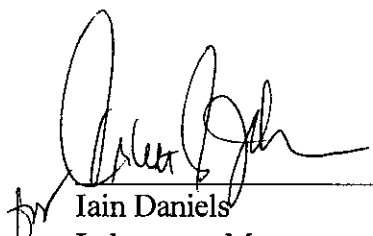
The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.

2. The sample was extracted and analyzed within required holding time.

3. Non-target compounds were detected in the sample.

4. All surrogate recoveries were within acceptance criteria.

5. Fifteen (15) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. Six (6) of one hundred twenty-eight (128) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

7. The method blank contained the common laboratory contaminant Di-n-butylphthalate at a level less than the CRQL.

8. Internal standard area and retention time criteria were met.
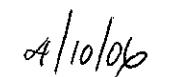
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 3 pages.

9.   Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

10.   LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

11.   I certify, that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data, contained in this hard-copy data package, has been authorized, by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

4/10/06
Date

som\gorup\data\bna\tnu-hanford\0603-574.doc

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: _06 MS111_

Initiator: _Sharon Taylor_
Date: _4-5-06_
Client: _TWU_

Batch: _0603L574_
Samples: _001 ms, msd, 05, 810_
Method: (SW846/MCAWW/CLP/)

Parameter: _8270_
Matrix: _Aqueos_
Prep Batch: _061E0230_

---

1. Reason for SDR
a. **COC Discrepancy** __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C
__ Transcription Error __ Wrong Test Code __ Other _____

b. **General Discrepancy**
__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. **Problem** (Include all relevant specific results; attach data if necessary)
① no recovery of 3,3'-dichlorobenzidine in the msd + the blank spike dup (all within criteria)

② low recovery of several analytes in the ~~matrix spike~~ matrix spiked dup, blank spike + blank spiked dup
Several spike compounds biased high. PMcY 4/6/06   (4chloroaniline) (4chloroaniline, 3nitroaniline) (4chloroaniline)

---

2. Known or Probable Causes(s)
① loss due to highly erratic chromatographic behavior of these compounds

---

3. Discussion and Proposed Action   Other Description:
__ Re-log
__ Entire Batch
__ Following Samples: _____   narrate
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

---

4. Project Manager Instructions...signature/date: _____ 4/5/06
✓ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
__ Date/Person _____
__ Add
__ Cancel

---

5. Final Action...signature/date: _____ 4/10/06   Other Explanation:
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
	X Initiator	__	__ Metals: Beegle
①	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
	X Project Mgr: Stone/Johnson	__	__ GC/LC: Kiger
	__ Data Management: Stilwell	②	X MS: Rychlak/Daley
__	__ Sample Prep: Beegle/Kiger	__	__ Log-in: Perry
		__	__ Admin: _____
		__	__ Other: _____

QA-105-A-0805

GLOSSARY

DATA QUALIFIERS

U   =   Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J   =   Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B   =   This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E   =   Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D   =   Identifies all compounds identified in an analysis at a secondary dilution factor.

I   =   Interference.

NQ   =   Result qualitatively confirmed but not able to quantify.

N   =   Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X   =   This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y   =   Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

BS   =   Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD =   Indicates blank spike duplicate.

MS   =   Indicates matrix spike.

MSD =   Indicates matrix spike duplicate.

DL   =   Suffix added to sample number to indicate that results are from a diluted analysis.

NA   =   Not Applicable.

DF   =   Dilution Factor.

NR   =   Not Required.

SP, Z =   Indicates Spiked Compound.

sb\10-03\gloss.doc

LvLI
LIONVILLE LABORATORY INC

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following 'flags' are used to indicate the technical reasons for quan modifications:

MP - **Missed Peak:** Manually added peak not found by automatic quan program.

PA - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.

RI - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.

SP - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.

PI - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

	Cust ID:	J11J28		J11J28		J11J28		SBLKVL		SBLKVL BS		SBLKVL BSD	
Sample	RFW#:	· 001		001 MS		001 MSD		06LE0230-MB1		06LE0230-MB1		06LE0230-MB1	
Information	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
	Nitrobenzene-d5	66	%	69	%	89	%	70	%	81	%	82	%
Surrogate	2-Fluorobiphenyl	57	%	70	%	84	%	64	%	75	%	82	%
Recovery	Terphenyl-d14	83	%	69	%	87	%	112	%	80	%	79	%
	Phenol-d5	66	%	71	%	85	%	71	%	84	%	77	%
	2-Fluorophenol	64	%	68	%	82	%	75	%	85	%	79	%
	2,4,6-Tribromophenol	68	%	81	%	104	%	72	%	94	%	75	%
Phenol		10	U	75	%	93	%	10	U	89	%	84	%
bis(2-Chloroethyl)ether		10	U	75	%	101	%	10	U	89	%	91	%
2-Chlorophenol		10	U	73	%	100	%	10	U	91	%	93	%
1,3-Dichlorobenzene		10	U	58	%	75	%	10	U	65	%	72	%
1,4-Dichlorobenzene		10	U	58	%	76	%	10	U	66	%	72	%
1,2-Dichlorobenzene		10	U	62	%	80	%	10	U	69	%	77	%
2-Methylphenol		10	U	72	%	100	%	10	U	95	%	104	%
2,2'-oxybis(1-Chloropropane)		10	U	72	%	95	%	10	U	84	%	88	%
4-Methylphenol		10	U	74	%	99	%	10	U	95	%	107	%
N-Nitroso-di-n-propylamine		10	U	74	%	97	%	10	U	88	%	96	%
Hexachloroethane		10	U	57	%	73	%	10	U	64	%	70	%
Nitrobenzene		10	U	71	%	102 *	%	10	U	84	%	90	%
Isophorone		10	U	77	%	99	%	10	U	91	%	98	%
2-Nitrophenol		10	U	72	%	101	%	10	U	83	%	90	%
2,4-Dimethylphenol		10	U	63	%	98	%	10	U	87	%	84	%
bis(2-Chloroethoxy)methane		10	U	72	%	78	%	10	U	80	%	58	%
2,4-Dichlorophenol		10	U	71	%	100	%	10	U	86	%	93	%
1,2,4-Trichlorobenzene		10	U	62	%	86	%	10	U	70	%	78	%
Naphthalene		10	U	67	%	91	%	10	U	75	%	85	%
4-Chloroaniline		10	U	124 *	%	13 *	%	10	U	7 *	%	7 *	%
Hexachlorobutadiene		10	U	65	%	90	%	10	U	73	%	84	%
4-Chloro-3-methylphenol		10	U	76	%	100	%	10	U	90	%	93	%
2-Methylnaphthalene		10	U	71	%	97	%	10	U	83	%	93	%
Hexachlorocyclopentadiene		10	U	54	%	76	%	10	U	56	%	67	%
2,4,6-Trichlorophenol		10	U	85	%	112 *	%	10	U	92	%	90	%
2,4,5-Trichlorophenol		25	U	82	%	106	%	25	U	90	%	97	%

*= Outside of EPA CLP QC limits.

Cust ID:	J11J28		J11J28		J11J28		SBLKVL		SBLKVL BS		SBLKVL BSD	
RFW#:	001		001 MS		001 MSD		06LE0230-MB1		06LE0230-MB1		06LE0230-MB1	
2-Chloronaphthalene	10	U	75	%	101	%	10	U	85	%	91	%
2-Nitroaniline	25	U	85	%	110	%	25	U	93	%	95	%
Dimethylphthalate	10	U	74	%	85	%	10	U	89	%	77	%
Acenaphthylene	10	U	74	%	100	%	10	U	85	%	84	%
2,6-Dinitrotoluene	10	U	77	%	89	%	10	U	89	%	95	%
3-Nitroaniline	25	U	120	%	14	%	25	U	7 *	%	11	%
Acenaphthene	10	U	76	%	98	%	10	U	86	%	93	%
2,4-Dinitrophenol	25	U	87	%	125 *	%	25	U	121 *	%	130 *	%
4-Nitrophenol	25	U	94	%	112 *	%	25	U	103	%	96	%
Dibenzofuran	10	U	75	%	95	%	10	U	87	%	92	%
2,4-Dinitrotoluene	10	U	83	%	95	%	10	U	95	%	102	%
Diethylphthalate	10	U	75	%	83	%	10	U	92	%	97	%
4-Chlorophenyl-phenylether	10	U	75	%	92	%	10	U	87	%	93	%
Fluorene	10	U	76	%	96	%	10	U	89	%	94	%
4-Nitroaniline	25	U	100	%	33	%	25	U	22	%	23	%
4,6-Dinitro-2-methylphenol	25	U	89	%	121	%	25	U	116	%	97	%
N-Nitrosodiphenylamine (1)	10	U	55	%	38	%	10	U	60	%	32	%
4-Bromophenyl-phenylether	10	U	66	%	92	%	10	U	84	%	81	%
Hexachlorobenzene	10	U	79	%	115 *	%	10	U	97	%	95	%
Pentachlorophenol	25	U	105 *	%	138 *	%	25	U	139 *	%	89	%
Phenanthrene	10	U	86	%	129 *	%	10	U	104	%	109	%
Anthracene	10	U	78	%	108	%	10	U	93	%	84	%
Carbazole	10	U	88	%	97	%	10	U	98	%	60	%
Di-n-butylphthalate	0.8	JB	83	%	109	%	2	J	90	%	78	%
Fluoranthene	10	U	97	%	130 *	%	10	U	97	%	92	%
Pyrene	10	U	71	%	94	%	10	U	83	%	88	%
Butylbenzylphthalate	10	U	75	%	101	%	10	U	90	%	96	%
3,3'-Dichlorobenzidine	10	U	89	%	0	%	10	U	1	%	0	%
Benzo(a)anthracene	10	U	82	%	108	%	10	U	93	%	99	%
Chrysene	10	U	79	%	107	%	10	U	90	%	100	%
bis(2-Ethylhexyl)phthalate	10	U	78	%	106	%	10	U	91	%	99	%
Di-n-octyl phthalate	10	U	81	%	140	%	10	U	95	%	124	%
Benzo(b)fluoranthene	10	U	87	%	145 *	%	10	U	93	%	123	%
Benzo(k)fluoranthene	10	U	82	%	144 *	%	10	U	91	%	112	%
Benzo(a)pyrene	10	U	79	%	129	%	10	U	89	%	108	%
Indeno(1,2,3-cd)pyrene	10	U	86	%	144 *	%	10	U	97	%	119	%
Dibenz(a,h)anthracene	10	U	87	%	150 *	%	10	U	96	%	120	%
Benzo(g,h,i)perylene	10	U	83	%	130	%	10	U	93	%	112	%

(1) - Cannot be separated from Diphenylamine.   *= Outside of EPA CLP QC limits.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J11J28

Lab Name: <u>Lionville Labs, Inc.</u> Work Order: <u>11343606001</u>

Client: <u>TNUHANFORD RC-048 K0263</u>

Matrix: (soil/water) <u>WATER</u>

Sample wt/vol: <u>1000</u> (g/mL) <u>ML</u>

Level: (low/med) <u>LOW</u>

% Moisture: _____ decanted: (Y/N) __

Concentrated Extract Volume: <u>1000</u>(uL)

Injection Volume: <u>2.0</u>(uL)

GPC Cleanup: (Y/N) <u>N</u>   pH: <u>7.0</u>

Number TICs found: <u>4</u>

Lab Sample ID: <u>0603L574-001</u>

Lab File ID: <u>D033109</u>

Date Received: <u>03/22/06</u>

Date Extracted: <u>03/27/06</u>

Date Analyzed: <u>03/31/06</u>

Dilution Factor: <u>1.00</u>

CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>ug/L</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.983	3	J
2.	UNKNOWN	5.524	2	J
3.	UNKNOWN	13.879	5	J
4.	UNKNOWN	19.228	30	J

FORM 1 SV-TIC   RFW (v3.3)

SEMIVOLATILE ORGANICS **ANALYSIS** DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

|
|SBLKVL
|

Lab Name: <u>Lionville Labs, Inc.</u> Work Order: <u>11343606001</u>

Client: <u>TNUHANFORD RC-048 K0263</u>

Matrix: (soil/water) <u>WATER</u>   Lab Sample ID: <u>06LE0230-MB1</u>

Sample wt/vol: <u>1000</u>   (g/mL) <u>ML</u>   Lab File ID: <u>D032908</u>

Level: (low/med) <u>LOW</u>   Date Received: <u>03/27/06</u>

% Moisture: _____   decanted: (Y/N)__   Date Extracted: <u>03/27/06</u>

Concentrated Extract Volume: <u>1000</u>(uL)   Date Analyzed: <u>03/29/06</u>

Injection Volume: <u>2.0</u>(uL)   Dilution Factor: <u>1.00</u>

GPC Cleanup: (Y/N) <u>N</u>   pH: <u>7.0</u>

Number TICs found: <u>0</u>

CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>ug/L</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
============	===============	====	============	===
1.				

FORM 1 SV-TIC   RFW (v3.3)

Lionville Laboratory Use Only

0603L574

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

LVL

					AC D F G H					I	I				
Refrigerator #					2	2	2			8	2				
#/Type Container	Liquid				G	G	G			P	P				
	Solid														
Volume	Liquid				L	L	L			500	125				
	Solid														
Preservatives					—	—	—			HN3	H2SO4				

Client: TNW-HANFORD SAF# RC·048

Est. Final Proj. Sampling Date _____

Project # 11343-606-001-9999-00

Project Contact/Phone # _____

Lionville Laboratory Project Manager OJ

QC Spec Del Std TAT 30 days

Date Rec'd 3/22/06 Date Due 4/21/06

		ORGANIC						INORG		
ANALYSES REQUESTED →		VOA	BNA	Pest/PCB				Metal	CN	N02 N03

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	0W285H	0608H	0PCB			METAL(S)	IN3N02		
			MS	MSD												
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	001	J11J28	✓	✓	W	3/20/06	1102	3	3	2			1	1		

Special Instructions:

METAL(S) = HSL+ Bi, B, Li, Mo, P, Si, Sr, Sn, W

DATE/REVISIONS:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
		3/22/06	0920					COMPOSITE WASTE"	ORIGINAL REWRITTEN		

Collector DURATEK F. M HMI	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location 199-N-26		SAF No. RC-048	Air Quality ☐	45 Days
Ice Chest No. ERC-99-062	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES / (IONVILLE)	Offsite Property No. A060338		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

Cool 4°C

	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS		Tritium - H3	See item (1) in Special Instructions	Strontium-89,90 - Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium-226; Ra-228	See item (2) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081
Sample No.	Matrix *	Sample Date	Sample Time										
J11J28	WATER	MAR 20 2006	1102							X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DURATEK FM Removal MAR 20 2006	1250	WCH SJ GALES	32006 / 1250
SJ GALES 32006	1350	REF 2A 32006	1350
3728 #2A 3-21-06	0900	T.R. Edmonson TR Edmonson	3-21-06
WCH T.R. Edmonson TR Edmonson 3-21-06	1500	FED EX	
FedEx 3/22/06	0920	V. Neimar 3-22-06	0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238)

(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)

Personnel not available to relinquish samples from 3728 Ref# 2A on 3 /21/06

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Sol
DL=Drum Liq
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Collector DURATEK F. M. HALL

Company Contact JOAN KESSNER

Telephone No. 375-4688

Project Coordinator KESSNER, JH

Price Code 7N

Data Turnaround 45 Days

Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa

Sampling Location 199-N-26

SAF No. RC-048

Air Quality ☐

Ice Chest No. ERC-99-062

Field Logbook No. EL-1592

COA BESRAS6520

Method of Shipment FED EX

Shipped To EBERLINE SERVICES LIONVILLE

Offsite Property No. A060338

Bill of Lading/Air Bill No. SEB OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage
Cool 4°C

	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C								
	Type of Container	P	G/P								
	No. of Container(s)	1	1								
	Volume	125mL	125mL								
SAMPLE ANALYSIS		See item (1) in Special Instructions.	NO2/NO3 - 353.2								

Sample No.	Matrix *	Sample Date	Sample Time									
J11J28	WATER	MAR 2 0 2006	1107		X							

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DURATEK F. M. HALL	MAR 2 0 2006 1250	WCH SJOALE _____ 32006	1250
SJOALE _____ 32006	1350	REF 2A 32106	1350
3728 #2A 3-21-06	0900	T.R. Edmundson _____	3-21-06 0900
T.R. Edmundson _____ 3-21-06	WCH 1500	FED EX	
FED EX 3-22-06	0900	_____	3-22-06 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

Personnel not available to relinquish samples from 3728 Ref # 2A on 3/21/06

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Sol
DL=Drum Liq
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (08/29/2005)

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU-HANFORD*   Date: 3/22/06

Purchase Order / Project# /
SAF# / SOW# / Release #: *RC-048*

LvLI Batch # :   *0603L574*   Sample Custodian: *V. Hermong*

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or (Shipped)   Carrier *FedEp*   Airbill# *7920 4803 4460*

2. Custody seals on coolers or shipping   ☑ Yes   ☐ No   ☐ No Seals   Comments
   container intact, signed and dated?

3. Outside of coolers or shipping containers are   ☑ Yes   ☐ No
   free from damage?

4. All expected paperwork received (coc and   ☑ Yes   ☐ No
   other client specific information) sealed in
   plastic bag and easily accessible?

5. Samples received (cooled) or ambient?   Temp *3* °C   Cooler # *ERC-99-062*
   Id

6. Custody seals on sample containers intact,   ☑ Yes   ☐ No   ☐ No Seals
   signed and dated?

7. coc signed and dated?   ☑ Yes   ☐ No

8. Sample containers are intact?   ☑ Yes   ☐ No

9. All samples on coc received? All samples   ☑ Yes   ☐ No
   received on coc?

10. All sample label information matches coc?   ☑ Yes   ☐ No

11. Samples properly preserved?   ☑ Yes   ☐ No

12. Samples received within hold times?   ☑ Yes   ☐ No
    Short holds taken to wet lab?

13. VOA, TOC, TOX free of headspace?   ☐ Yes   ☐ No   ☑ N/A

14. QC stickers placed on bottles designated by   ☑ Yes   ☐ No   ☐ N/A
    client?   *3/3/22/06*

15. Shipment meets LvLI Sample Acceptance   ☑ Yes   ☐ No
    Policy? (Identify all bottles not within
    policy. See reverse side for policy)

16. Project Manager contacted concerning   ☐ Yes   ☐ No   ☑ No
    discrepancies? name/date (or samples   Discrepancies
    outside criteria)

SR-002-B

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-048 K0263
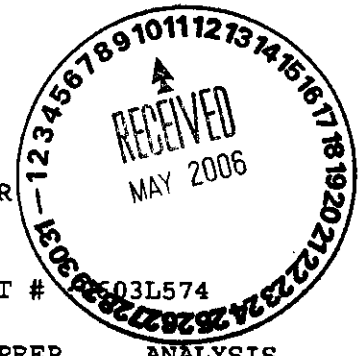
DATE RECEIVED: 03/22/06   LVL LOT # 0603L574

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11J28	001	W	06LE0225	03/20/06	03/23/06	03/28/06
J11J28	001 MS	W	06LE0225	03/20/06	03/23/06	03/28/06
J11J28	001 MSD	W	06LE0225	03/20/06	03/23/06	03/28/06

LAB QC:

PBLKDW	MB1	W	06LE0225	N/A	03/23/06	03/28/06
PBLKDW	MB1 BS	W	06LE0225	N/A	03/23/06	03/28/06
PBLKDW	MB1 BSD	W	06LE0225	N/A	03/23/06	03/28/06

LvLI

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-048
LVL #: 0603L574
SDG/SAF # K0263/RC-048

W.O. #: 11343-606-001-9999-00
Date Received: 03-22-2006

CHLORINATED PESTICIDES

One (1) water sample was collected on 03-20-2006.

The sample and its associated QC samples were extracted on 03-23-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 03-28-2006. The extraction procedure was based on method 3520C and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

1. The sample was extracted and analyzed within required holding time.

2. The sample and its associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.

3. The method blank was below the reporting limits for all target compounds.

4. All surrogate recoveries were within acceptance criteria.

5. All blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. The initial calibrations associated with this data set were within acceptance criteria.

8. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

9.　LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

10.　I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

_____　　　　　　　_____
Iain Daniels　　　　　　　　　　　　　　　　　　Date
Laboratory Manager
Lionville Laboratory Incorporated

som\r:\group\data\pest\tnu hanford\0603-574s.pst

GLOSSARY OF DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

.I = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

NS = Not Spiked.

SP = Indicates Spiked Compound.

P = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

NPM = No pattern match for multi-component target analytes.

00000005

Cust ID:	J11J28	J11J28	J11J28	PBLKDW	PBLKDW BS	PBLKDW BSD
Sample RFW#:	001	001 MS	001 MSD	06LE0225-MB1	06LE0225-MB1	06LE0225-MB1
Information Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L

Surrogate: Tetrachloro-m-xylene	97 %	96 %	91 %	100 %	104 %	96 %
Decachlorobiphenyl	82 %	79 %	78 %	105 %	103 %	99 %
===fl	===fl	===fl	===fl	===fl	===fl	===fl
Alpha-BHC	0.050 U	76 %	77 %	0.050 U	85 %	73 %
gamma-BHC (Lindane)	0.050 U	85 %	87 %	0.050 U	95 %	83 %
Beta-BHC	0.050 U	84 %	92 %	0.050 U	119 %	89 %
Heptachlor	0.050 U	84 %	84 %	0.050 U	92 %	81 %
Delta-BHC	0.050 U	72 %	74 %	0.050 U	82 %	72 %
Aldrin	0.050 U	82 %	84 %	0.050 U	92 %	80 %
Heptachlor epoxide	0.050 U	116 %	119 %	0.050 U	94 %	85 %
gamma-Chlordane	0.050 U	87 %	90 %	0.050 U	94 %	85 %
Endosulfan I	0.050 U	87 %	90 %	0.050 U	98 %	88 %
alpha-Chlordane	0.050 U	86 %	88 %	0.050 U	94 %	84 %
4,4'-DDE	0.050 U	91 %	94 %	0.050 U	102 %	91 %
Dieldrin	0.050 U	89 %	90 %	0.050 U	99 %	89 %
Endrin	0.050 U	98 %	99 %	0.050 U	105 %	93 %
4,4'-DDD	0.050 U	98 %	100 %	0.050 U	110 %	104 %
Endosulfan II	0.050 U	87 %	89 %	0.050 U	98 %	86 %
4,4'-DDT	0.050 U	92 %	94 %	0.050 U	99 %	88 %
Endrin aldehyde	0.050 U	77 %	83 %	0.050 U	91 %	83 %
Endosulfan sulfate	0.050 U	92 %	94 %	0.050 U	99 %	90 %
Methoxychlor	0.050 U	95 %	98 %	0.050 U	107 %	96 %
Endrin ketone	0.050 U	91 %	93 %	0.050 U	101 %	93 %
Toxaphene	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory Use Only

0603L574

LVL

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

Client _TNLL-HANFORD_ SAF# _RC-048_

Est. Final Proj. Sampling Date _____

Project # _11343-606-001-9999-00_

Project Contact/Phone # _____

Lionville Laboratory Project Manager _OJ_

QC _Spec_ Del _Std_ TAT _30 Days_

Date Rec'd _3/22/06_ Date Due _4/21/06_

				ACD-FGH			I	J
Refrigerator #				2	2	2	2	2
#/Type Container	Liquid			G	G	G	P	P
	Solid							
Volume	Liquid			L	L	L	500	625
	Solid							
Preservatives				—	—	—	HN3	H2SO4

ORGANIC / INORG

| ANALYSES REQUESTED → | VOA | BNA | Pest/PCB | | Metal | CN | NO2 NO3 |

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lionville Laboratory Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0635H	0606H	0PCB	METAL(S)	IN3N2
001	J1 J28	✓	✓	W	3/24/06	1102	3	3	2	1	1

Special Instructions:

METAL(S) = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U

DATE/REVISIONS:
1. _____ GPCR R
2. _____ 0605 Hv
3. _____
4. _____
5. _____
6. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[signature]	[signature]	3/24/06	0920					COMPOSITE WASTE"	ORIGINAL REWRITTEN		

Collector DURACEK F. M. HILL	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location 199-N-26		SAF. No. RC-048	Air Quality ☐	45 Days
Ice Chest No. ERC-99-062	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A060338		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

Cool 4°C

	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	G/P	G/P	G/P,	G/P	G/P	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS		Tritium - H3	See item (1) in Special Instructions	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11J28	WATER	MAR 20 2006	1102								X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed DURACEK MAR 20 2006 Date/Time 1250	Received By/Stored In WCH Date/Time 1250 SJ GALES 32006	(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}	S=Soil SE=Sediment SO=Solid
Relinquished By/Removed From Date/Time SJ GALES 32006 1350	Received By/Stored In REF 2A 32006 1350 Date/Time	(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)	SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From Date/Time 3728 # 2A 3-21-06 0500	Received By/Stored In TK Edmundson Date/Time 0900 3-21-06		T=Tissue W=Wipe L=Liquid V=Vegetation
Relinquished By/Removed From WCH Date/Time 1500 TK Edmundson 32106	Received By/Stored In FED EX Date/Time		X=Other
Relinquished By/Removed From Date/Time FED EX 3/22/06 0920	Received By/Stored In V. Neinord 3-22-06 0920 Date/Time	Personnel not available to relinquish samples from 3728 Ref# 2A on 3/21/06	
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Collector **DURATEK** F. M. HALL	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code **7N**	Data Turnaround

Project Designation: 100 Area and 300 Area Component of the RCBRA Water Sa

Sampling Location: 199-N-26

SAF No. RC-048

Air Quality ☐

45 Days

Ice Chest No. _ERC-99-062_

Field Logbook No. EL-1592

COA BESRAS6520

Method of Shipment FED EX

Shipped To: EBERLINE SERVICES (LIONVILLE)

Offsite Property No. _A060338_

Bill of Lading/Air Bill No. SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

Cool 4°C

	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C									
	Type of Container	P	G/P									
	No. of Container(s)	1	1									
	Volume	125mL	125mL									
SAMPLE ANALYSIS		See item (1) in Special Instructions.	NO2/NO3 - 353.2									

Sample No.	Matrix *	Sample Date	Sample Time														
J11J28	WATER	MAR 2 0 2006	1107		X												

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
F. M. HALL MAR 2 0 2006	1250	S. DALE WCH 32006	1250
S. DALE 32006	1350	REF 2A 32106	1350
3728 #2A 3-21-06	0900	TR Edmundson TR Edmundson 3-21-06	0900
WCH TR. Edmundson TR. Edmundson 3-21-06	1500	FED EX	
FED EX 3-22-06	0900	3-22-06	0900

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

Personnel not available to relinquish samples from 3728

Ref # _2A_ on _3/21/06_

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
Va=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (08/29/2005)

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: _TNU-HANFORD_   Date: _3/22/06_

Purchase Order / Project# /
SAF# / SOW# / Release #: _RC-048_

LvLI Batch # : _0603L574_   Sample Custodian: _V. Neumann_

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or (Shipped)   Carrier _FedEx_   Airbill# _7920 4803 4460_

2. Custody seals on coolers or shipping container intact, signed and dated?   ☑ Yes   ☐ No   ☐ No Seals   Comments

3. Outside of coolers or shipping containers are free from damage?   ☑ Yes   ☐ No

4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?   ☐ Yes   ☐ No

5. Samples received (cooled) or ambient?   Temp _3_° °C   Cooler # _ERC-99-062_
   _Id_

6. Custody seals on sample containers intact, signed and dated?   ☐ Yes   ☐ No   ☐ No Seals

7. coc signed and dated?   ☐ Yes   ☐ No

8. Sample containers are intact?   ☐ Yes   ☐ No

9. All samples on coc received? All samples received on coc?   ☐ Yes   ☐ No

10. All sample label information matches coc?   ☐ Yes   ☐ No

11. Samples properly preserved?   ☐ Yes   ☐ No

12. Samples received within hold times? Short holds taken to wet lab?   ☑ Yes   ☐ No

13. VOA, TOC, TOX free of headspace?   ☐ Yes   ☐ No   ☑ N/A

14. QC stickers placed on bottles designated by client?   ☑ Yes   ☐ No   ☐ N/A
    _3/3/22/06_

15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)   ☑ Yes   ☐ No

16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)   ☐ Yes   ☐ No   ☑ No Discrepancies

SR-002-B

LvLI
LIONVILLE LABORATORY INC.

000000009

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-048 K0263

DATE RECEIVED: 03/22/06   LVL LOT #

CLIENT ID	LVL #		MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11J28	001		W	06LE0225	03/20/06	03/23/06	03/28/06
J11J28	001	MS	W	06LE0225	03/20/06	03/23/06	03/28/06
J11J28	001	MSD	W	06LE0225	03/20/06	03/23/06	03/28/06

LAB QC:

PBLKDW	MB1		W	06LE0225	N/A	03/23/06	03/28/06
PBLKDW	MB1	BS	W	06LE0225	N/A	03/23/06	03/28/06
PBLKDW	MB1	BSD	W	06LE0225	N/A	03/23/06	03/28/06

000000001

LvLI
LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD RC-048
LVL #: 0603L574
SDG/SAF # K0263/RC-048

W.O. #: 11343-606-001-9999-00
Date Received: 03-22-2006

PCB

One (1) water sample was collected on 03-20-2006.

The sample and its associated QC samples were extracted on 03-23-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 03-28-2006. The extraction procedure was based on method 3520C and the extracts were analyzed based on method 8082.
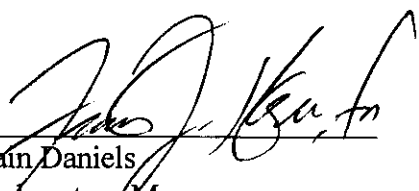
The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.

2. The sample was extracted and analyzed within required holding time.

3. The sample and its associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.

4. The method blank was below the reporting limits for all target compounds.

5. All surrogate recoveries were within acceptance criteria.

6. All blank spike recoveries were within acceptance criteria.

7. The matrix spike recoveries were within acceptance criteria.

8. The initial calibrations associated with this data set were within acceptance criteria.

9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

som\r:\group\data\pest\tmu hanford\0603-574s.pcbs

4/13/6
Date

GLOSSARY OF DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

.I = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

NS = Not Spiked.

SP = Indicates Spiked Compound.

P = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form 1 and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

NPM = No pattern match for multi-component target analytes.

Lionville Laboratory, Inc.
PCBs by GC
RFW Batch Number: 0603L574   Client: **TNUHANFORD RC-048 K0263**   Report Date: 04/08/06 10:01

Work Order: 11343606001 Page: 1

Cust ID:		J11J28	J11J28	J11J28	PBLKDW	PBLKDW BS	PBLKDW BSD
Sample Information	RFW#:	001	001 MS	001 MSD	06LE0225-MB1	06LE0225-MB1	06LE0225-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate: Tetrachloro-m-xylene		112 %	104 %	104 %	120 %	113 %	100 %
Decachlorobiphenyl		89 %	88 %	89 %	122 %	98 %	98 %
==========================fl========fl=========fl=========fl==========fl==========fl===========fl							
Aroclor-1016		0.40 U	112 %	112 %	0.40 U	115 %	106 %
Aroclor-1221		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1232		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1242		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1248		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1254		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Aroclor-1260		0.40 U	113 %	111 %	0.40 U	115 %	100 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

0603C574

0000000006

Client _TNCC-HANFORD_ SAF# _RC-048_

Est. Final Proj. Sampling Date _____

Project # _11343-606-001-9999-00_

Project Contact/Phone # _____

Lionville Laboratory Project Manager _OJ_

QC _Spec_ Del _Std_ TAT _30Days_

Date Rec'd _3/22/06_ Date Due _4/21/06_

		ACDFGH					I	J		
Refrigerator #		2	2	2			2	2		
#/Type Container	Liquid	G	G	G			P	P		
	Solid									
Volume	Liquid	C	C	C			500	625		
	Solid									
Preservatives		—	—	—			HN3	H2SO4		

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB PCB Herb
INORG: Metal | CN | NO2 NO3

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	0625H	0608H	0PCB			METALS①		IN3/12		
		MS	MSD													
001	JIIJ28	✓	✓	W	3/20/06	1102	3	3	2			1		1		

Lionville Laboratory Use Only

Special Instructions:

METAL(S)① = HSL+ Bi, B, Li, Mo, P, Si, Sr, Sn, U

DATE/REVISIONS:

1. _____ OPCR R
2. _____ O608Hv
3. _____
4. _____
5. _____
6. _____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[signature]	[signature]	3/22/06	0920					"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

Collector DUPATEX F. M HALL	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround

Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa

Sampling Location 199-N-26

SAF. No. RC-048

Air Quality ☐

45 Days

Ice Chest No. ERC-99-062

Field Logbook No. EL-1592

COA BESRAS6520

Method of Shipment FED EX

Shipped To EBERLINE SERVICES / LIONVILLE

Offsite Property No. A060338

Bill of Lading/Air Bill No. SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

Cool 4°C

		None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Preservation										
	Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS		Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11J28	WATER	MAR 20 2006	1102								X	X	X	X

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MAR 20 2006 1250		WCH SJGALES 32006	1250
SJGALES 32006 1350		REF 2A 32006 1350	
3728 #2A 3-21-06 0900		Te Edmondson JR Edmondson 3-21-06	0900
WCH Te Edmondson JR Edmondson 32106	1500	FED EX	
FoEO 3/22/06 0920		V. Newcomb 3-22-06 0920	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

Personnel not available to relinquish samples from 3728 Ref # 2A on 3/21/06

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
Ve=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (08/29/2005)

Collector DURATEK F. M. HALL	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location 199-N-26		SAF No. RC-048	Air Quality ☐	45 Days
Ice Chest No. ERC-99-062	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A060338		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

Cool 4°C

	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C									
	Type of Container	P	Q/P									
	No. of Container(s)	1	1									
	Volume	125mL	125mL									
SAMPLE ANALYSIS		See Item (1) in Special Instructions.	NO2/NO3 - 353.2									

Sample No.	Matrix *	Sample Date	Sample Time									
J11J28	WATER	MAR 2 0 2006	1107		X							

CHAIN OF POSSESSION	Sign/Print Names		SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From DURATEK F. M. HALL Date/Time 1250 MAR 2 0 2006	Received By/Stored In WCH Date/Time SJOALE//M 32006 1250		(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)	S=Soil SE=Sediment SO=Solid St=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From Date/Time SJOALE//M 32006 1350	Received By/Stored In Date/Time REF 2A 32106 1350			
Relinquished By/Removed From Date/Time 3728 #2A 3-21-06 0900	Received By/Stored In Date/Time 0900 TR Edmundson TR Edmundson 3-21-06			
Relinquished By/Removed From WCH Date/Time 1500 TR Edmundson TR Edmundson 3-21-06	Received By/Stored In Date/Time FED EX		Personnel not available to relinquish samples from 3728 Ref # 2A on 3/21/06	
Relinquished By/Removed From Date/Time FED EX 3-22-06 0900	Received By/Stored In Date/Time 3-22-06 0900			
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time			

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (08/29/2005)

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: _TNU-HANFORD_   Date: _3/22/06_

Purchase Order / Project# /
SAF# SOW# / Release #: _RC-048_

LvLI Batch # : _0603L574_   Sample Custodian: _V. Neimand_

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or (Shipped)   Carrier _FedEx_   Airbill# _7920 4803 4460_

2. Custody seals on coolers or shipping container intact, signed and dated?   ☑ Yes   ☐ No   ☐ No Seals   Comments

3. Outside of coolers or shipping containers are free from damage?   ☑ Yes   ☐ No

4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?   ☐ Yes   ☐ No

5. Samples received (cooled) or ambient?   Temp _3_ °C   Cooler # _ERC-99-062_
   _H_

6. Custody seals on sample containers intact, signed and dated?   ☑ Yes   ☐ No   ☐ No Seals

7. coc signed and dated?   ☑ Yes   ☐ No

8. Sample containers are intact?   ☑ Yes   ☐ No

9. All samples on coc received? All samples received on coc?   ☑ Yes   ☐ No

10. All sample label information matches coc?   ☐ Yes   ☐ No

11. Samples properly preserved?   ☐ Yes   ☐ No

12. Samples received within hold times? Short holds taken to wet lab?   ☑ Yes   ☐ No

13. VOA, TOC, TOX free of headspace?   ☐ Yes   ☐ No   ☑ N/A

14. QC stickers placed on bottles designated by client?   ☑ Yes   ☐ No   ☐ N/A
    _3/22/06_

15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)   ☑ Yes   ☐ No

16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)   ☐ Yes   ☐ No   ☐ No Discrepancies

SR-002-B

LvLI
LIONVILLE LABORATORY INC.

000000009

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-048 K0263

DATE RECEIVED: 03/22/06

LVL LOT # :0603

CLIENT ID /ANALYSIS	LVL	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11J28							
SILVER, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
SILVER, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
SILVER, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
ALUMINUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
ALUMINUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
ALUMINUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
ARSENIC, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
ARSENIC, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
ARSENIC, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
BORON, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
BORON, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
BORON, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
BARIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
BARIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
BARIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
BERYLLIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
BERYLLIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
BERYLLIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
BISMUTH, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
BISMUTH, TOTAL REP	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
BISMUTH, TOTAL SPIKE	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
CALCIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
CALCIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
CALCIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
CADMIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
CADMIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
CADMIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
COBALT, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
COBALT, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
COBALT, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
CHROMIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
CHROMIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
CHROMIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
COPPER, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
COPPER, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06

DATE RECEIVED: 03/22/06   LVL LOT # :0603L574

CLIENT ID /ANALYSIS	LVL #		MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
IRON, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
IRON, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
IRON, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
MERCURY, TOTAL	001		W	06C0057	03/20/06	03/29/06	03/30/06
MERCURY, TOTAL	001	REP	W	06C0057	03/20/06	03/29/06	03/30/06
MERCURY, TOTAL	001	MS	W	06C0057	03/20/06	03/29/06	03/30/06
POTASSIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
POTASSIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
POTASSIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
LITHIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
LITHIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
LITHIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
MAGNESIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
MAGNESIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
MAGNESIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
MANGANESE, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
MANGANESE, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
MANGANESE, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
MOLYBDENUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
MOLYBDENUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
MOLYBDENUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
SODIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
SODIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
SODIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
NICKEL, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
NICKEL, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
NICKEL, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
PHOSPHORUS, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
PHOSPHORUS, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
PHOSPHORUS, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
LEAD, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
LEAD, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
LEAD, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
ANTIMONY, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
ANTIMONY, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
ANTIMONY, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
SELENIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06

DATE RECEIVED: 03/22/06   LVL LOT # :0603L574

CLIENT ID /ANALYSIS	LVL	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
SELENIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
SILICON, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
SILICON, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
SILICON, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
TIN, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
TIN, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
TIN, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
STRONTIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
STRONTIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
STRONTIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
THALLIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
THALLIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
THALLIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
URANIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
URANIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
URANIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
VANADIUM, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
VANADIUM, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
VANADIUM, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06
ZINC, TOTAL	001		W	06L0195	03/20/06	03/30/06	04/03/06
ZINC, TOTAL	001	REP	W	06L0195	03/20/06	03/30/06	04/03/06
ZINC, TOTAL	001	MS	W	06L0195	03/20/06	03/30/06	04/03/06

LAB QC:

SILVER LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
SILVER, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
ALUMINUM LABORTORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
ALUMINUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
ARSENIC LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
ARSENIC, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
BORON LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
BORON, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
BARIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
BARIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
BERYLLIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
BERYLLIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06

DATE RECEIVED: 03/22/06   LVL LOT # :0603L574

CLIENT ID /ANALYSIS	LVL	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BISMUTH, LCS	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
BISMUTH, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
CALCIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
CALCIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
CADMIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
CADMIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
COBALT LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
COBALT, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
CHROMIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
CHROMIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
COPPER LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
COPPER, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
IRON LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
IRON, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
MERCURY LABORATORY	LC1	BS	W	06C0057	N/A	03/29/06	03/30/06
MERCURY, TOTAL	MB1		W	06C0057	N/A	03/29/06	03/30/06
MERCURY, TCLP LEACHA	MB2		W	06C0057	N/A	03/29/06	03/30/06
POTASSIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
POTASSIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
LITHIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
LITHIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
MAGNESIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
MAGNESIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
MANGANESE LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
MANGANESE, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
MOLYBDENUM LABORATOR	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
MOLYBDENUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
SODIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
SODIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
NICKEL LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
NICKEL, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
PHOSPHORUS LCS	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
PHOSPHORUS, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
LEAD LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
LEAD, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
ANTIMONY LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
ANTIMONY, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
SELENIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06

DATE RECEIVED: 03/22/06   LVL LOT # :0603L574

CLIENT ID /ANALYSIS	LVL #		MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
SILICON LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
SILICON, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
TIN LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
TIN, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
STRONTIUM LCS STANDA	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
STRONTIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
THALLIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
THALLIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
URANIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
URANIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
VANADIUM LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
VANADIUM, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06
ZINC LABORATORY	LC1	BS	W	06L0195	N/A	03/30/06	04/03/06
ZINC, TOTAL	MB1		W	06L0195	N/A	03/30/06	04/03/06

~~Analytical Report~~

Client: TNU-HANFORD RC-048
LVL#: 0603L574
SDG/SAF#: K0263/RC-048

W.O.#: 11343-606-001-9999-00
Date Received: 03-22-06

METALS CASE NARRATIVE

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvLI) certifies that all test results meet the requirements of NELAC except as noted below.

1.   This narrative covers the analysis of 1 water sample.

2.   The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample was rerun for Aluminum, Beryllium, Calcium, Iron, Magnesium, Manganese, Potassium, Phosphorous, and Sodium due to high concentrations and sample matrix.

3.   All analyses were performed within the required holding times.

4.   All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

5.   All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

6.   All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

7.   All ICP Interference Check Standards were within control limits.

8.   All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

9.   The matrix spike (MS) recoveries for 3 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10.   For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the

following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J11J28	Chromium	1,100	100.1
	Iron	40,000	83.2
	Manganese	2,000	99.0

11. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

13. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

5/1/0x
Date

jjw/m03-574

LvLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within t

Lot#: 0603L574

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: _X_3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other:_____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X 6010B		__200.7				__99
Antimony	X 6010B	__7041 [s]	__200.7	__204.2			__99
Arsenic	X 6010B	__7060A [s]	__200.7	__206.2	__3113B		__99
Barium	X 6010B		__200.7				__99
Beryllium	X 6010B		__200.7				__99
Bismuth	X 6010B [1]		__200.7 [1]			__1620	__99
Boron	X 6010B		__200.7				__99
Cadmium	X 6010B	__7131A [s]	__200.7	__213.2			__99
Calcium	X 6010B		__200.7				__99
Chromium	X 6010B	__7191 [s]	__200.7	__218.2			__SS17
Cobalt	X 6010B		__200.7				__99
Copper	X 6010B	__7211 [s]	__200.7	__220.2			__99
Iron	X 6010B		__200.7				__99
Lead	X 6010B	__7421 [s]	__200.7	__239.2	__3113B		__99
Lithium	X 6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X 6010B		__200.7				__99
Manganese	X 6010B		__200.7				__99
Mercury	X 7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [3]			__99
Molybdenum	X 6010B		__200.7				__99
Nickel	X 6010B		__200.7				__99
Potassium	X 6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X 6010B	__7740 [s]	__200.7	__270.2	__3113B		__99
Silicon	X 6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X 6010B	__7761 [s]	__200.7	__272.2			__99
Sodium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	X 6010B		__200.7				__99
Thallium	X 6010B	__7841 [s]	__200.7	__279.2 __200.9			__99
Tin	X 6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	X 6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X 6010B		__200.7				__99
Zinc	X 6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other: Phosphorous   Method: 6010B _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U =   Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* =   Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1.   Not included in the method element list.

2.   Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).

3.   Flame AA.

4.   Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/28/06

CLIENT: TNUHANFORD RC-048 K0263   LVL LOT #: 0603L574
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11J28	Silver, Total	0.70 u	UG/L	0.70	1.0
		Aluminum, Total	51.6	UG/L	23.6	1.0
		Arsenic, Total	13.8	UG/L	6.1	1.0
		Boron, Total	43.4	UG/L	2.4	1.0
		Barium, Total	65.8	UG/L	0.20	1.0
		Beryllium, Total	0.31	UG/L	0.20	1.0
		Bismuth, Total	5.1 u	UG/L	5.1	1.0
		Calcium, Total	37300	UG/L	21.9	1.0
		Cadmium, Total	0.83	UG/L	0.70	1.0
		Cobalt, Total	24.6	UG/L	1.4	1.0
		Chromium, Total	1370	UG/L	1.3	1.0
		Copper, Total	90.2	UG/L	1.2	1.0
		Iron, Total	223000	UG/L	5.4	1.0
		Mercury, Total	0.10 u	UG/L	0.10	1.0
		Potassium, Total	4530	UG/L	771	1.0
		Lithium, Total	3.9	UG/L	0.30	1.0
		Magnesium, Total	7850	UG/L	39.1	1.0
		Manganese, Total	1330	UG/L	3.2	1.0
		Molybdenum, Total	28.0	UG/L	2.9	1.0
		Sodium, Total	86100	UG/L	25.1	1.0
		Nickel, Total	665	UG/L	2.4	1.0
		Phosphorus, Total	93.6	UG/L	9.0	1.0
		Lead, Total	3.1 u	UG/L	3.1	1.0
		Antimony, Total	4.4	UG/L	4.4	1.0
		Selenium, Total	4.8	UG/L	4.7	1.0
		Silicon, Total	17500	UG/L	22.7	1.0
		Tin, Total	10.7 u	UG/L	10.7	1.0
		Strontium, Total	171	UG/L	0.10	1.0
		Thallium, Total	7.0 u	UG/L	7.0	1.0
		Uranium, Total	29.4	UG/L	8.8	1.0
		Vanadium, Total	28.7	UG/L	0.90	1.0
		Zinc, Total	12.4	UG/L	1.6	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/28/06

CLIENT: TNUHANFORD RC-048 K0263   LVL LOT #: 0603L574

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	06L0195-MB1	Silver, Total	0.70 u	UG/L	0.70	1.0
		Aluminum, Total	23.6 u	UG/L	23.6	1.0
		Arsenic, Total	6.1 u	UG/L	6.1	1.0
		Boron, Total	2.4 u	UG/L	2.4	1.0
		Barium, Total	0.20 u	UG/L	0.20	1.0
		Beryllium, Total	0.20 u	UG/L	0.20	1.0
		Bismuth, Total	5.1 u	UG/L	5.1	1.0
		Calcium, Total	21.9 u	UG/L	21.9	1.0
		Cadmium, Total	0.70 u	UG/L	0.70	1.0
		Cobalt, Total	1.4 u	UG/L	1.4	1.0
		Chromium, Total	1.3 u	UG/L	1.3	1.0
		Copper, Total	1.5	UG/L	1.2	1.0
		Iron, Total	5.4 u	UG/L	5.4	1.0
		Potassium, Total	771 u	UG/L	771	1.0
		Lithium, Total	0.30 u	UG/L	0.30	1.0
		Magnesium, Total	39.1 u	UG/L	39.1	1.0
		Manganese, Total	3.2 u	UG/L	3.2	1.0
		Molybdenum, Total	2.9 u	UG/L	2.9	1.0
		Sodium, Total	25.1 u	UG/L	25.1	1.0
		Nickel, Total	2.4 u	UG/L	2.4	1.0
		Phosphorus, Total	9.0 u	UG/L	9.0	1.0
		Lead, Total	3.1 u	UG/L	3.1	1.0
		Antimony, Total	4.4 u	UG/L	4.4	1.0
		Selenium, Total	4.7 u	UG/L	4.7	1.0
		Silicon, Total	22.7 u	UG/L	22.7	1.0
		Tin, Total	10.7 u	UG/L	10.7	1.0
		Strontium, Total	0.10 u	UG/L	0.10	1.0
		Thallium, Total	7.0 u	UG/L	7.0	1.0
		Uranium, Total	8.8 u	UG/L	8.8	1.0
		Vanadium, Total	0.90 u	UG/L	0.90	1.0
		Zinc, Total	1.6 u	UG/L	1.6	1.0
BLANK1	06C0057-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0
BLANK2	06C0057-MB2	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/28/06

CLIENT: TNUHANFORD RC-048 K0263   LVL LOT #: 0603L574
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J11J28	Silver, Total	47.0	0.70u	50.0	94.0	1.0
		Aluminum, Total	1990	51.6	2000	96.8	1.0
		Arsenic, Total	1820	13.8	2000	90.5	1.0
		Boron, Total	996	43.4	1000	95.2	1.0
		Barium, Total	1910	65.8	2000	92.4	1.0
		Beryllium, Total	48.4	0.31	50.0	96.2	1.0
		Bismuth, Total	4780	5.1 u	5000	95.6	1.0
		Calcium, Total	60800	37300	25000	94.1	1.0
		Cadmium, Total	52.1	0.63	50.0	102.5	1.0
		Cobalt, Total	524	24.6	500	100	1.0
		Chromium, Total	1640	1370	200	134.5*	1.0
		Copper, Total	316	90.2	250	90.5	1.0
		Iron, Total	174000	223000	1000	-4900. *	1.0
		Mercury, Total	0.98	0.10u	1.0	98.5	1.0
		Potassium, Total	28300	4530	25000	95.0	1.0
		Lithium, Total	1080	3.9	1000	107.7	1.0
		Magnesium, Total	31700	7850	25000	95.3	1.0
		Manganese, Total	1560	1330	500	45.5	1.0
		Molybdenum, Total	950	28.0	1000	92.2	1.0
		Sodium, Total	111000	86100	25000	100.6	1.0
		Nickel, Total	1200	665	500	106.2	1.0
		Phosphorus, Total	4660	93.6	5000	91.3	1.0
		Lead, Total	506	3.1 u	500	101.2	1.0
		Antimony, Total	474	4.4	500	94.0	1.0
		Selenium, Total	1550	4.8	2000	77.1	1.0
		Silicon, Total	18700	17500	1000	117.4*	1.0
		Tin, Total	1020	10.7 u	1000	101.7	1.0
		Strontium, Total	1110	171	1000	93.9	1.0
		Thallium, Total	1990	7.0 u	2000	99.6	1.0
		Uranium, Total	2270	29.4	2500	89.7	1.0
		Vanadium, Total	516	28.7	500	97.4	1.0
		Zinc, Total	505	12.4	500	98.5	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/28/06

CLIENT: TNUHANFORD RC-048 K0263   LVL LOT #: 0603L574
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J11J28	Silver, Total	0.70u	0.70u	NC	1.0
		Aluminum, Total	51.6	42.1	20.3	1.0
		Arsenic, Total	13.8	15.2	9.7	1.0
		Boron, Total	43.4	41.7	4.0	1.0
		Barium, Total	65.8	65.6	0.30	1.0
		Beryllium, Total	0.31	0.25	21.4	1.0
		Bismuth, Total	5.1 u	5.1 u	NC	1.0
		Calcium, Total	37300	36300	2.7	1.0
		Cadmium, Total	0.83	0.70u	NC	1.0
		Cobalt, Total	24.6	24.7	0.41	1.0
		Chromium, Total	1370	1390	1.2	1.0
		Copper, Total	90.2	90.7	0.55	1.0
		Iron, Total	223000	224000	0.56	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Potassium, Total	4530	4190	7.7	1.0
		Lithium, Total	3.9	4.1	5.0	1.0
		Magnesium, Total	7850	7800	0.64	1.0
		Manganese, Total	1330	1330	0.23	1.0
		Molybdenum, Total	28.0	29.6	5.6	1.0
		Sodium, Total	86100	86500	0.54	1.0
		Nickel, Total	665	676	1.6	1.0
		Phosphorus, Total	93.6	89.8	4.1	1.0
		Lead, Total	3.1 u	3.1 u	NC	1.0
		Antimony, Total	4.4	4.6	4.4	1.0
		Selenium, Total	4.8	4.7 u	NC	1.0
		Silicon, Total	17500	17500	0.45	1.0
		Tin, Total	10.7 u	10.7 u	NC	1.0
		Strontium, Total	171	170	0.65	1.0
		Thallium, Total	7.0 u	7.0 u	NC	1.0
		Uranium, Total	29.4	34.9	17.1	1.0
		Vanadium, Total	28.7	28.9	0.69	1.0
		Zinc, Total	12.4	13.5	8.5	1.0

(handwritten annotations near Cadmium/Cobalt rows: "NC - correct entry pm 5/10/06")

(handwritten annotations near Selenium/Silicon rows: "NC - correct entry pm 4/28/06")

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/28/06

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	06L0195-LC1	Silver, LCS	495	500	UG/L	99.0
		Aluminum, LCS	4930	5000	UG/L	98.5
		Arsenic, LCS	9570	10000	UG/L	95.7
		Boron, LCS	4820	5000	UG/L	96.3
		Barium, LCS	4920	5000	UG/L	98.5
		Beryllium, LCS	248	250	UG/L	99.1
		Bismuth, LCS	4960	5000	UG/L	99.2
		Calcium, LCS	25700	25000	UG/L	102.6
		Cadmium, LCS	241	250	UG/L	96.3
		Cobalt, LCS	2450	2500	UG/L	97.8
		Chromium, LCS	489	500	UG/L	97.8
		Copper, LCS	1240	1250	UG/L	98.9
		Iron, LCS	4970	5000	UG/L	99.4
		Potassium, LCS	23500	25000	UG/L	93.9
		Lithium, LCS	5220	5000	UG/L	104.5
		Magnesium, LCS	24200	25000	UG/L	96.7
		Manganese, LCS	746	750	UG/L	99.4
		Molybdenum, LCS	4980	5000	UG/L	99.5
		Sodium, LCS	23200	25000	UG/L	92.8
		Nickel, LCS	1950	2000	UG/L	97.3
		Phosphorus, LCS	4810	5000	UG/L	96.1
		Lead, LCS	2420	2500	UG/L	97.0
		Antimony, LCS	2950	3000	UG/L	98.4
		Selenium, LCS	9840	10000	UG/L	98.4
		Silicon, LCS	4810	5000	UG/L	96.1
		Tin, LCS	4930	5000	UG/L	98.6
		Strontium, LCS	4990	5000	UG/L	99.8
		Thallium, LCS	9720	10000	UG/L	97.2
		Uranium, LCS	2470	2500	UG/L	98.6
		Vanadium, LCS	2450	2500	UG/L	97.9
		Zinc, LCS	972	1000	UG/L	97.2
LCS1	06C0057-LC1	Mercury, LCS	4.9	5.0	UG/L	98.8

Lionville Laboratory Use Only

0603L574

See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

AC DFGH   I   J

			Refrigerator #		2	2	2			2		2			
Client TNLL-HANFORD SAF# RC-048			#/Type Container	Liquid	C	C	C			P		P			
Est. Final Proj. Sampling Date ___				Solid											
Project # 11343-606-001-9999-00			Volume	Liquid	L	L	L			500		625			
Project Contact/Phone # ___				Solid											
Lionville Laboratory Project Manager OJ			Preservatives		−	−	−			HN3		H2SO4			

QC Spec Del Std TAT 30 days

Date Rec'd 3/22/06   Date Due 4/21/06

ANALYSES REQUESTED →

ORGANIC / INORG

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	VOA	BNA	Pest/ PCB			Metal	CN	NO2 NO3		
			MS	MSD				0635H	0606H	0PCB			METALS(1)		IN3112		
S - Soil																	
SE - Sediment																	
SO - Solid																	
SL - Sludge																	
W - Water																	
O - Oil																	
A - Air	001	J11J28	✓	✓	W	3/20/06	1102	3	3	2			1		1		
DS - Drum Solids																	
DL - Drum Liquids																	
L - EP/TCLP Leachate																	
WI - Wipe																	
X - Other																	
F - Fish																	

Lionville Laboratory Use Only

Special Instructions:

METALS(1) = HSL + Bi, B, Li, Mo, P, Si, Sr, Sn, U

DATE/REVISIONS:

1. ___
2. ___
3. ___
4. ___
5. ___
6. ___

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[signature]	[signature]	3/22/06	0920					COMPOSITE WASTE"	ORIGINAL REWRITTEN		

Collector DURATEX F. M. HILL	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location 199-N-26		SAF No. RC-048	Air Quality ☐	45 Days
Ice Chest No. ERC-99-062	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES / (IONVILLE)	Offsite Property No. A060338		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

Cool 4°C

SAMPLE ANALYSIS

	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	G/P	G/P	G/P	G/P	G/P	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
		Tritium - H3	See item (1) in Special Instructions.	Strontium-89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226: Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time										
J11J28	WATER	MAR 20 2006	1102								X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed DURATEX MAR 20 2006 Date/Time 1250	Received By/Stored In WCH Date/Time 1250 SJ GALES/_____ 32006
Relinquished By/Removed From Date/Time SJ GALES/_____ 32006 1350	Received By/Stored In Date/Time REF 2A 32006 1350
Relinquished By/Removed From Date/Time 3728 #2A 3-21-06 0900	Received By/Stored In Date/Time 0900 T.R. Edmondson /R Slaughter 3-21-06
Relinquished By/Removed From WCH Date/Time 1500 T.R. Edmondson /R Slaughter 3-21-06	Received By/Stored In Date/Time FED EX
Relinquished By/Removed From Date/Time FED EX 3/22/06 0900	Received By/Stored In Date/Time V. Nemond 3-22-06 0900
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

Personnel not available to relinquish samples from 3728 Ref# 2A on 3/21/06

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solid
DL=Drum Liq
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

Collector **DURATEK** F. M. HALL	Company Contact JOAN KESSNER	Telephone No. 375-4688		Project Coordinator KESSNER, JH	Price Code **7N**	Data Turnaround
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location 199-N-26			SAF No. RC-048	Air Quality ☐	**45 Days**
Ice Chest No. **ERC-99-062**	Field Logbook No. EL-1592	COA BESRAS6520		Method of Shipment FED EX		
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. **A060338**			Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

Cool 4°C

	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C							
	Type of Container	P	G/P							
	No. of Container(s)	1	1							
	Volume	125mL	125mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	NO2/NO3 - 353.2							

Sample No.	Matrix *	Sample Date	Sample Time											
J11J28	WATER	MAR 20 2006	1107		X									

CHAIN OF POSSESSION / Sign/Print Names

Relinquished By/Removed From **DURATEK** F. M. HALL MAR 20 2006	Date/Time 1250	Received By/Stored In wCH SJOALE... 32006	Date/Time 1250
Relinquished By/Removed From SJOALE... 32006	Date/Time 1350	Received By/Stored In REF 2A 32006	Date/Time 1350
Relinquished By/Removed From 3728 #2A 3-21-06	Date/Time 0900	Received By/Stored In T.R. Edmundson	Date/Time 0900 3-21-06
Relinquished By/Removed From WCH T.R. Edmundson 3-21-06	Date/Time 1500	Received By/Stored In FED EX	Date/Time
Relinquished By/Removed From 3-22-06	Date/Time 0920	Received By/Stored In	Date/Time 3-22-06 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

Personnel not available to relinquish samples from 3728 Ref # 2A on 3/21/06

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W=Water
O=Oil
A=Air
DS=Drum Sol
DL=Drum Liq
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (08/29/2005)

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNu-HANFORD*   Date: 3/22/06

Purchase Order / Project# /
SAF# / SOW# / Release #: *RC-048*

LvLI Batch # : *0603L574*   Sample Custodian: *V. Neumann*

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or (Shipped)   Carrier *FedEx*   Airbill# *7920 4803 4460*

2. Custody seals on coolers or shipping container intact, signed and dated?   ☑ Yes   ☐ No   ☐ No Seals   Comments

3. Outside of coolers or shipping containers are free from damage?   ☑ Yes   ☐ No

4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?   ☐ Yes   ☐ No

5. Samples received cooled or ambient?   Temp 3° °C   Cooler # *ERC-99-062*
   Fd

6. Custody seals on sample containers intact, signed and dated?   ☐ Yes   ☐ No   ☐ No Seals

7. coc signed and dated?   ☐ Yes   ☐ No

8. Sample containers are intact?   ☐ Yes   ☐ No

9. All samples on coc received? All samples received on coc?   ☐ Yes   ☐ No

10. All sample label information matches coc?   ☐ Yes   ☐ No

11. Samples properly preserved?   ☐ Yes   ☐ No

12. Samples received within hold times? Short holds taken to wet lab?   ☑ Yes   ☐ No

13. VOA, TOC, TOX free of headspace?   ☐ Yes   ☐ No   ☑ N/A

14. QC stickers placed on bottles designated by client?   ☑ Yes   ☐ No   ☐ N/A
    JN 3/22/06

15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)   ☑ Yes   ☐ No

16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)   ☐ Yes   ☐ No   ☐ No Discrepancies

SR-002-B

LvLI
LIONVILLE LABORATORIES INC.

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-048 K0263

DATE RECEIVED: 03/22/06   LVL LOT # :0603L5

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11J28						
NITRATE NITRITE	001	W	06LN3021	03/20/06	04/10/06	04/10/06
NITRATE NITRITE	001 REP	W	06LN3021	03/20/06	04/10/06	04/10/06
NITRATE NITRITE	001 MS	W	06LN3021	03/20/06	04/10/06	04/10/06

LAB QC:

NITRATE NITRITE	MB1	W	06LN3021	N/A	04/10/06	04/10/06
NITRATE NITRITE	MB1 BS	W	06LN3021	N/A	04/10/06	04/10/06

01

![LvLI - Lionville Laboratory Inc. logo]

Analytical Report ·

Client: TNU-HANFORD RC-048 K0263
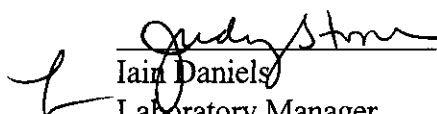**LVL#:** 0603L574

W.O.#: 11343-606-001-9999-00
Date Received: 03-22-06

INORGANIC NARRATIVE

1. This narrative covers the analysis of 1 water sample.

2. The sample was prepared and analyzed in accordance with the method checked on the attached glossary. ·

   LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

3. Sample holding time as required by the method and/or contract was met.

4. The results presented in this report are derived from a sample that met LvLI's sample acceptance policy.

5. The method blank was within the method criteria.

6. The Laboratory Control Sample (LCS) was within the laboratory control limits.

7. The matrix spike recovery was within the 75-125% control limits.

8. The replicate analysis was outside the 20% Relative Percent Difference (RPD) control limit at 23.8%.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

_4/26/06_
Date

njp\i03-574

02

Lionville Laboratory Incorporated
WET CHEMISTRY
METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	305.1		
___Alkalinity ___Bicarbonate ___Carbonate	310.1		
BOD	405.1		___ 5210B (b)
Ion Chromatography:			
___Bromide ___Chloride ___Fluoride	300.0	9056	
___Nitrate ___Nitrite ___Phosphate	300.0	9056	
___Sulfate ___Formate ___Acetate ___Oxalate	300.0	9056	
Chloride	325.2	9251	
Chorine, Residual	330.5 (mod)		
Cyanide, Amenable to Chlorination	335.2	9010B	
Cyanide, Total	335.2	9010B ___ 9014	ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			___ 412 (a) ___ 4500CN-I (l
COD	410.4(mod)		5220C (b)
Color	110.2		
Corrosivity by Coupon		1110(mod)	
Chromium VI		7196A	___ 3500Cr-D (b)
Fluoride	340.2		4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	/425.1		
√Nitrate-Nitrite ___Nitrate ___Nitrite	√ 353.2		
Ammonia	350.3		
Total___ Kjeldahl ___ Organic Nitrogen	351.3		
Total ___ Organic ___ Inorganic Carbon	415.1	9060	
Oil & Grease	413.1	9070	
___ pH ___ pH; paper	150.1	9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	160.5		
Sulfide	376.1	9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		Section 7.3 (__9014__9030B)	
Silica	370.1		
Sulfite	377.1		
Sulfate	375.4	9038	
Specific Conductance	120.1	9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach	1312		
Total ___Dissolved __Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	450.1	9020B	
Turbidity	180.1		
Volatile Solids:			
__Total __Dissolved __Suspended	160.4		
Other:		Method:	

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

INORGANICS DATA SUMMARY REPORT   04/10/06

CLIENT: TNUHANFORD RC-048 K0263   LVL LOT #: 0603L574
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11J28	Nitrate Nitrite	20.7	MG/L	2.0	100

CLIENT: TNUHANFORD RC-048 K0263   LVL LOT #: 0603L574
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LN3021-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT   04/10/06

CLIENT: TNUHANFORD RC-048 K0263   LVL LOT #: 0603L574
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J11J28	Nitrate Nitrite	66.7	20.7	50.0	92.0	100
BLANK10	06LN3021-MB1	Nitrate Nitrite	0.50	0.02u	0.50	99.8	1.0

07

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/10/06

CLIENT: TNUHANFORD RC-048 K0263   LVL LOT #: 0603L574
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	J11J28	Nitrate Nitrite	20.7	16.3	23.8	100

Lionville Laboratory Use Only

0603L574

See SRC

LVL

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

AC D F G H   I   J

| | | | | | Refrigerator # | | | 2 | 2 | 2 | | | 2/P | 2/P | |
| | | | | | | | | C | C | C | | | | | |

Client: TNLL-HANFORD SAF# RC-048

Est. Final Proj. Sampling Date: ___

Project #: 11343-606-001-9999-00

Project Contact/Phone #: ___

Lionville Laboratory Project Manager: OJ

QC: Spec Del: Std TAT: 30 Days

Date Rec'd: 3/22/06 Date Due: 4/21/06

#/Type Container	Liquid			G	G	C					
	Solid										
Volume	Liquid			L	L	L			500	625	
	Solid										
Preservatives			—	—	—			HN3	H2SO4	

ORGANIC | INORG
NO2
ANALYSES REQUESTED → VOA | BNA | Pest/PCB | | | | | Metal | CN | NO3

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0635H	0606H	0PCB	METAL(S)	IN3/N2			
001	JILJ28	✓	✓	W	3/20/06	1102	3	3	2	1	1			

Special Instructions:

METAL(S)= HSL+ Bi, B, Li, Mo, P, Si, Sr, Sn, W

DATE/REVISIONS:
1. ___
2. ___
3. ___
4. ___
5. ___
6. ___

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[signature]	[signature]	3/21/06	0920					COMPOSITE WASTE	ORIGINAL REWRITTEN		

Collector DURATEX F. M HALL	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7N	Data Turnaround
Project Designation 100 Area and 300 Area Component of the RCBRA Water Sa	Sampling Location 199-N-26		SAF No. RC-048	Air Quality ☐	45 Days

Ice Chest No. ERC-99-062	Field Logbook No. EL-1592	COA BESRAS6520	Method of Shipment FED EX

Shipped To EBERLINE SERVICES / (JONVILLE)	Offsite Property No. A060338	Bill of Lading/Air Bill No. SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

Cool 4°C

	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C
	Type of Container	P	G/P	G/P	G/P	G/P,	G/P	G/P	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	3	2	3
	Volume	125mL	1000mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS		Tritium - H3	See item (1) in Special Instructions.	Strontium- 89,90 -- Total Sr	Isotopic Thorium (Thorium-232)	Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238)	Radium -226; Ra-228	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL)	PCBs - 8082	Pesticides - 8081

Sample No.	Matrix *	Sample Date	Sample Time											
J11J28	WATER	MAR 20 2006	1102								X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed MAR 20 2006 Date/Time 1250	Received By/Stored In WCH Date/Time 1250 SJGALES/Wel 32006	(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}	S=Soil SE=Sediment SO=Solid
Relinquished By/Removed From Date/Time SJGALES/Wel 32006 1350	Received By/Stored In Date/Time REF 2A 32006 1350	(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese,	SL=Sludge W = Water O=Oil
Relinquished By/Removed From Date/Time 3728 #2A 3-21-06 0900	Received By/Stored In Date/Time 0700 TR Edmonton JR Edmonton 3-21-06	Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)	A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From WCH Date/Time 1500 TR Edmonton JR Edmonton 3-21-06	Received By/Stored In Date/Time FED EX		T=Tissue W=Wipe L=Liquid V=Vegetation
Relinquished By/Removed From Date/Time FedEx 3/22/06 0930	Received By/Stored In Date/Time V. Neuman 3-22-06 0930	Personnel not available to relinquish samples from 3728 Ref# 2A on 3/21/06	X=Other
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (08/29/2005)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Washington Closure Hanford

RC-048-367

Collector	DURATEK F. M. HALL

Company Contact	Telephone No.	Project Coordinator	Price Code	7N	Data Turnaround
JOAN KESSNER	375-4688	KESSNER, JH			45 Days

Project Designation
100 Area and 300 Area Component of the RCBRA Water Sa

Sampling Location
199-N-26

SAF No.
RC-048

Air Quality ☐

Ice Chest No. ERC-99-062

Field Logbook No. EL-1592

COA BESRAS6520

Method of Shipment FED EX

Shipped To EBERLINE SERVICES LIONVILLE

Offsite Property No. A060338

Bill of Lading/Air Bill No. SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage
Cool 4°C

	Cool 4C	H2SO4 to pH <2 Cool 4C									
Preservation											
Type of Container	P	G/P									
No. of Container(s)	1	1									
Volume	125mL	125mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	NO2/NO3 - 353.2									

Sample No.	Matrix *	Sample Date	Sample Time									
J11J28	WATER	MAR 20 2006	1107		X							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DURATEK F. M. HALL MAR 20 2006	1250	WCH SJOALE J/Ash 32006	1250
SJOALE J/Ash 32006	1350	REF 2A 32106	1350
3728 # 2A 3-21-06	0900	TR Edmundson TR Edmundson 3-21-06	0900
WCH TR Edmundson TR Edmundson 3-21-06	1500	FED EX	
FED EX 3-22-06	0900	Diamond 3-22-06	0900

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

Personnel not available to relinquish samples from 3728
Ref # 2A on 3/21/06

Matrix *
Sa=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (08/29/2005)

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: _TNU-HANFORD_   Date: _3/22/06_

Purchase Order / Project# /
(SAF#) SOW# / Release #: _RC-048_

LvLI Batch # : _0603L574_   Sample Custodian: _V. Nurcong_

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or (Shipped)   Carrier _FedEx_   Airbill# _7920 4803 4460_

2. Custody seals on coolers or shipping container intact, signed and dated?   ☑ Yes   ☐ No   ☐ No Seals   Comments

3. Outside of coolers or shipping containers are free from damage?   ☑ Yes   ☐ No

4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?   ☑ Yes   ☐ No

5. Samples received (cooled) or ambient? _FL_   Temp _3_ °C   Cooler # _ERC-99-062_

6. Custody seals on sample containers intact, signed and dated?   ☐ Yes   ☐ No   ☐ No Seals

7. coc signed and dated?   ☐ Yes   ☐ No

8. Sample containers are intact?   ☐ Yes   ☐ No

9. All samples on coc received? All samples received on coc?   ☐ Yes   ☐ No

10. All sample label information matches coc?   ☐ Yes   ☐ No

11. Samples properly preserved?   ☐ Yes   ☐ No

12. Samples received within hold times? Short holds taken to wet lab?   ☑ Yes   ☐ No

13. VOA, TOC, TOX free of headspace?   ☐ Yes   ☐ No   ☑ N/A

14. QC stickers placed on bottles designated by client?   ☑ Yes   ☐ No   ☐ N/A _3/3/22/06_

15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)   ☑ Yes   ☐ No

16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)   ☐ Yes   ☐ No   ☑ No Discrepancies

SR-002-B

LvLI
LIONVILLE LABORATORY INC.

LvLI

LIONVILLE LABORATORY INC.

28 March 2006

Joan Kessner
WC-Hanford
3190 Washington Way
MSIN H9-03
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0603L563
SDG #	K0263
SAF #	RC-048
Date Received	3/216
# Samples	3
Mat\rix	WATER
Volatiles	
Semivolatiles	
Pest/PCB	
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-048

DATE RECEIVED: 03/21/06   LVL LOT # :0603L563

CLIENT ID /ANALYSIS	LVL #		MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
J11J28								
BROMIDE BY IC	001		W	06LIC034	03/20/06	03/21/06	03/21/06	
BROMIDE BY IC	001	REP	W	06LIC034	03/20/06	03/21/06	03/21/06	
BROMIDE BY IC	001	MS	W	06LIC034	03/20/06	03/21/06	03/22/06	
CHLORIDE BY IC	001		W	06LIC034	03/20/06	03/21/06	03/21/06	
CHLORIDE BY IC	001	REP	W	06LIC034	03/20/06	03/21/06	03/21/06	
CHLORIDE BY IC	001	MS	W	06LIC034	03/20/06	03/21/06	03/22/06	
FLUORIDE BY IC	001		W	06LIC034	03/20/06	03/21/06	03/21/06	
FLUORIDE BY IC	001	REP	W	06LIC034	03/20/06	03/21/06	03/21/06	
FLUORIDE BY IC	001	MS	W	06LIC034	03/20/06	03/21/06	03/22/06	
NITRITE BY IC	001		W	06LIC034	03/20/06	03/21/06	03/21/06	1605
NITRITE BY IC	001	REP	W	06LIC034	03/20/06	03/21/06	03/21/06	1622
NITRITE BY IC	001	MS	W	06LIC034	03/20/06	03/21/06	03/22/06	0909
NITRATE BY IC	001		W	06LIC034	03/20/06	03/21/06	03/21/06	1456
NITRATE BY IC	001	REP	W	06LIC034	03/20/06	03/21/06	03/21/06	1532
NITRATE BY IC	001	MS	W	06LIC034	03/20/06	03/21/06	03/22/06	0853
PHOSPHATE BY IC	001		W	06LIC034	03/20/06	03/21/06	03/21/06	1605
PHOSPHATE BY IC	001	REP	W	06LIC034	03/20/06	03/21/06	03/21/06	1622
PHOSPHATE BY IC	001	MS	W	06LIC034	03/20/06	03/21/06	03/22/06	0909
SULFATE BY IC	001		W	06LIC034	03/20/06	03/21/06	03/21/06	
SULFATE BY IC	001	REP	W	06LIC034	03/20/06	03/21/06	03/21/06	
SULFATE BY IC	001	MS	W	06LIC034	03/20/06	03/21/06	03/22/06	

LAB QC:

BROMIDE BY IC	MB1		W	06LIC034	N/A	03/21/06	03/21/06
BROMIDE BY IC	MB1	BS	W	06LIC034	N/A	03/21/06	03/21/06
CHLORIDE BY IC	MB1		W	06LIC034	N/A	03/21/06	03/21/06
CHLORIDE BY IC	MB1	BS	W	06LIC034	N/A	03/21/06	03/21/06
FLUORIDE BY IC	MB1		W	06LIC034	N/A	03/21/06	03/21/06
FLUORIDE BY IC	MB1	BS	W	06LIC034	N/A	03/21/06	03/21/06
NITRITE BY IC	MB1		W	06LIC034	N/A	03/21/06	03/21/06
NITRITE BY IC	MB1	BS	W	06LIC034	N/A	03/21/06	03/21/06
NITRATE BY IC	MB1		W	06LIC034	N/A	03/21/06	03/21/06
NITRATE BY IC	MB1	BS	W	06LIC034	N/A	03/21/06	03/21/06
PHOSPHATE BY IC	MB1		W	06LIC034	N/A	03/21/06	03/21/06

DATE RECEIVED: 03/21/06   LVL LOT # :0603L563

CLIENT ID /ANALYSIS	LVL #		MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	MB1	BS	W	06LIC034	N/A	03/21/06	03/21/06
SULFATE BY IC	MB1		W	06LIC034	N/A	03/21/06	03/21/06
SULFATE BY IC	MB1	BS	W	06LIC034	N/A	03/21/06	03/21/06

Analytical Report

Client: TNU-HANFORD RC-048 K0263
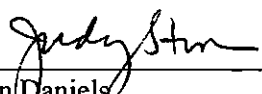**LVL#:** 0603L563

W.O.#: 11343-606-001-9999-00
Date Received: 03-21-06

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.

2. The sample was prepared and analyzed in accordance with the method checked on the attached glossary.

   LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

3. Sample holding times as required by the method and/or contract were met (see the sample chronology summary for analyses times for short hold samples).

4. The results presented in this report are derived from a sample that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike recoveries for Bromide, Chloride, Fluoride, Nitrite, Nitrate, Phosphate and Sulfate were within the 75-125% control limits.

8. The replicate analyses for Bromide, Chloride, Nitrite, Nitrate, Phosphate and Sulfate were within the 20% Relative Percent Difference (RPD) control limit however replicate analysis for Fluoride was outside the control limit that may be attributed to sample inhomogeneity.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/31/06
Date

njp\i03-563

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

03

Lionville Laboratory Incorporated
WET CHEMISTRY
METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	305.1		
___Alkalinity ___Bicarbonate ___Carbonate	310.1		
BOD	405.1		5210B (b)
Ion Chromatography:			
✓Bromide ✓Chloride ✓Fluoride	✓300.0	9056	
✓Nitrate ✓Nitrite ✓Phosphate	✓300.0	9056	
✓Sulfate ___Formate ___Acetate ___Oxalate	✓300.0	9056	
Chloride	325.2	9251	
Chorine, Residual	330.5 (mod)		
Cyanide, Amenable to Chlorination	335.2	9010B	
Cyanide, Total	335.2	9010B 9014	ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			412 (a) 4500CN-I (
COD	410.4(mod)		5220C (b)
Color	110.2		
Corrosivity by Coupon		1110(mod)	
Chromium VI		7196A	3500Cr-D (b)
Fluoride	340.2		4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
Iodide			ASTM D19P202 (1)
Surfactant	425.1		
___Nitrate-Nitrite ___Nitrate ___Nitrite	353.2		
Ammonia	350.3		
Total___ Kjeldahl ___ Organic Nitrogen	351.3		
Total___ Organic ___ Inorganic Carbon	415.1	9060	
Oil & Grease	413.1	9070	
___ pH ____ pH; paper	150.1	9040B 9041A	
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1 420.2	9065 9066	
___Ortho ___Total Phosphate	365.2		4500-P B C
Salinity			210A (a) 2520 (b)
Settleable Solids	160.5		
Sulfide	376.1	9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		Section 7.3 (_9014_9030B)	
Silica	370.1		
Sulfite	377.1		
Sulfate	375.4	9038	
Specific Conductance	120.1	9050A	
Specific Gravity			D5057-90 213E (a)
Synthetic Precipitation Leach	1312		
Total ___Dissolved ___Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	450.1	9020B	
Turbidity	180.1		
Volatile Solids:			
__Total __Dissolved __Suspended	160.4		
Other:		Method:	

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U =   Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* =   Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1.   ASTM Standard Methods.

2.   USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3.   Test Methods for Evaluating Solid Waste (USEPA SW-846).

a.   Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b.   Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c.   Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d.   Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e.   USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f.   Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT   03/23/06

CLIENT: TNU-HANFORD RC-048   LVL LOT #: 0603L563
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J11J28	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	20.1	MG/L	2.5	10.0
		Fluoride by IC	0.32	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	71.5	MG/L	2.50	10.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	92.7	MG/L	2.5	10.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/23/06

CLIENT: TNU-HANFORD RC-048   LVL LOT #: 0603L563
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	06LIC034-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0

07

CLIENT: TNU-HANFORD RC-048   LVL LOT #: 0603L563
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J11J28	Bromide by IC	10.3	0.12	10.0	102.0	2.0
		Chloride by IC	124	20.1	100	103.6	20.0
		Fluoride by IC	10.6	0.32	10.0	102.4	2.0
		Nitrite by IC	10.0	0.25u	10.0	100.4	2.0
		Nitrate by IC	180	71.5	100	108.9	20.0
		Phosphate by IC	11.0	0.25u	10.0	109.6	2.0
		Sulfate by IC	203	92.7	100	110.6	20.0
BLANK10	06LIC034-MB1	Bromide by IC	4.9	0.25u	5.0	97.2	1.0
		Chloride by IC	4.7	0.25u	5.0	93.9	1.0
		Fluoride by IC	4.9	0.25u	5.0	98.0	1.0
		Nitrite by IC	5.02	0.25u	5.00	100.3	1.0
		Nitrate by IC	4.84	0.25u	5.00	96.9	1.0
		Phosphate by IC	5.3	0.25u	5.0	105.5	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.4	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT   03/23/06

CLIENT: TNU-HANFORD RC-048   LVL LOT #: 0603L563
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J11J28	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	20.1	20.1	0.13	10.0
		Fluoride by IC	0.32	0.51	45.6	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	71.5	72.3	1.2	10.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	92.7	94.0	1.4	10.0

Lionville Laboratory Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

See SRC

0603L563

LVL

												2.
Client TNU Hanford RC-048	Refrigerator #											
Est. Final Proj. Sampling Date	#/Type Container	Liquid										'pl
		Solid										
Project # 11343-606-061-9999-00	Volume	Liquid										196ml
Project Contact/Phone #		Solid										
Lionville Laboratory Project Manager Orlette Johnson	Preservatives											—

QC Spec   Del Std   TAT 30 Days

Date Rec'd 3·21·06   Date Due 4/20/06

						ORGANIC							INORG		
ANALYSES REQUESTED →				VOA	BNA	Pest/ PCB	Herb				Metal	CN		IC Anions

Lionville Laboratory Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected											IC(A)
			MS	MSD														
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air	001	J11J28	✓	✓	W	3.20·06	1102											X
DS - Drum Solids																	
DL - Drum Liquids																	
L - EP/TCLP Leachate																	
WI - Wipe X - Other F - Fish																	

Special Instructions:

IC(A) = IC-CL, Br, Fl, NO3, NO2, PO4, SO4

DATE/REVISIONS:

1. ___
2. ___
3. ___
4. ___
5. ___
6. ___

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Fed. Ex	NJSmith	3·21·06	0915					"COMPOSITE WASTE"			

ORIGINAL

Washington Closure Hanford — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — RC-048-367 — Page 2 of 2

Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	Data Turnaround
DUPLICATE F. M. HALL	JOAN KESSNER	375-4688	KESSNER, JH	7N	

Project Designation	Sampling Location	SAF No.	Air Quality ☐	**45 Days**
100 Area and 300 Area Component of the RCBRA Water Sa	199-N-26	RC-048		

Ice Chest No.	Field Logbook No.	COA	Method of Shipment
AFS04 037	EL-1592	BESRAS6520	FED EX

Shipped To	Offsite Property No.	Bill of Lading/Air Bill No.
EBERLINE SERVICES (LIONVILLE)	A060337	SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

POTENTIAL RADIOACTIVE < DOT LIMITS

Special Handling and/or Storage

	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C										
	Type of Container	P	G/P										
	No. of Container(s)	1	1										
	Volume	125mL 3	125mL										
SAMPLE ANALYSIS		See item (#) in Special Instructions.	NO2/NO3 - 353.2										

Sample No.	Matrix *	Sample Date	Sample Time											
J11J28	WATER	MAR 2 0 2006	1107	X										

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DUPLICATE F.M. MAR 2 0 2006	1250	SIGNED/PAH WCH 32006	1250
WCH SIGNED/PAH 320 06	1350	FED EX	
FeD EX 3.21.06/0915		N. Smith 3.21.06/0915	

SPECIAL INSTRUCTIONS

3 40 2006

(#) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford

Date: 3·21·06

Purchase Order / Project# / SAF# / SOW# / Release #: RC·048

LvLI Batch # : 0603L563

Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or (Shipped)   Carrier Fed Ex   Airbill# 7914 1391 7380

2. Custody seals on coolers or shipping container intact, signed and dated?   ☑ Yes   ☐ No   ☐ No Seals   Comments

3. Outside of coolers or shipping containers are free from damage?   ☑ Yes   ☐ No

4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?   ☑ Yes   ☐ No

5. Samples received (cooled) or ambient? IR.   Temp 2.3 °C   Cooler # AFS-04-037

6. Custody seals on sample containers intact, signed and dated?   ☑ Yes   ☐ No   ☐ No Seals

7. coc signed and dated?   ☑ Yes   ☐ No

8. Sample containers are intact?   ☑ Yes   ☐ No

9. All samples on coc received? All samples received on coc?   ☑ Yes   ☐ No

10. All sample label information matches coc?   ☑ Yes   ☐ No

11. Samples properly preserved?   ☑ Yes   ☐ No

12. Samples received within hold times? Short holds taken to wet lab?   ☑ Yes   ☐ No

13. VOA, TOC, TOX free of headspace?   ☐ Yes   ☐ No   ☑ N/A

14. QC stickers placed on bottles designated by client?   ☑ Yes   ☐ No   ☐ N/A

15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)   ☑ Yes   ☐ No

16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)   ☐ Yes   ☐ No   ☑ No Discrepancies

SR-002-B

LvLI
LIONVILLE LABORATORY INC.

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